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NEW! Matrox Millennium II 4MB WRAM Video Card
NEW! 24X MAX Variable EIDE CD-ROM Drive
Yamaha 32 Wave Table Sound
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NEW! 56K Capable* U.S. Robotics x2 Modem
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3 Year Limited Warranty

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4MB EDO VRGE 3D Video Card
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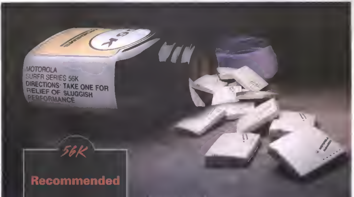

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NEW! 24X MAX* Variable EIDE CD-ROM Drive
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2MB EDO VRGE 3D Video
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Microsoft Office 97 Small Business Edition w/Encarta
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Integrated Yamaha 16 Bit Sound
Altec Lansing ACS 90 Speakers
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Iomega Zip 100MB IDE Internal Drive with One Cartridge
2 Universal Serial Bus (USB) Ports
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Microsoft Office 97 Small Business Edition w/Encarta
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6 Drive Bays: 3 External 5.25"/3 Internal 3.5
3 Year Limited Warranty

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8X SCSI CD ROM
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Computex spotlights Taiwan s industry influence

I recently traveled to Taipei Taiwan—certainly one of the more influential shows for the computer dealer channel. Though it lacks significant quantities of major resources the tiny island of Taiwan (which is smaller than Vancouver Island), located about 100 km off the coast of the People's Republic of China, holds 21 5 million people, and is one of the world s largest manufacturers of computer products

The country leads the world in motherboard production, and produces a third of the world's notebooks Significant proportions of the world's supply of cases, power supplies keyboards scanners and countless other computer products come from Taiwan

Computex is held every year at the beginning of June which also corresponds with the summer monsoon season It rained most days that I was there Crank the heat up to 30 degrees Celsius and the humidity to high and you have a pretty good idea of what it is like in Taiwan

Innovalue

The marketing people for Taiwan have coined the term "Innovalue" to describe the island s approach to creating products for the world markets It is a combination of innovation and value Another word combo they should consider is "cloneverging"—a combination of cloning and diverging. Many Taiwanese companies will take an existing product and rapidly come up with a high-quality, lower cost alternative with some new wrinkles to the product

I saw numerous examples of this The Paperport scanner, Pilot handheld computers motherboards and Wacom tablets were all up for this kind of treatment

The show had very little software on display Out of more than 600 booths, there were as few as 28 focusing on software One vendor suggested that because software piracy is so rampant in many countries along the Pacific Rim, that Taiwan businesses do not trust putting their efforts into a medium that is so easily pilfered.

The Computex show is very much a show from Taiwan manufacturers to the world Most of the vendors are from Taiwan though some Japanese, American and European companies show up to try and build support for their technologies with the hugely dominant Taiwanese motherboard manufacturers

Major trends

The show was good, though somewhat lacking in truly innovative products Taiwan's strength has been to focus on specific product categories, build expertise and then dominate the market I saw endless variants of scanners motherboards notebooks, tiny monitors, Web TV devices and keyboards

Newton saves the week

My Newton saved my butt on this trip The trip from Vancouver to Taiwan is a 10- to 11 hour trip My notebook usually gives up the ghost about half way through the Toronto to Vancouver flight, so I did not expect it to make it all the way across the Pacific With that in mind I brought along my Newton 2000 The Newton will last 20 to 30 hours on four AA batteries I was able to get a fair bit of work done with it When I arrived at the hotel I found that the screen on my notebook had gone bad and all I had was my Newton to rely on.

International dial-up service

I recently signed up for the IBM Net It has one of the most comprehensive log-in networks on a worldwide basis. I checked and they seem to have offer dial-up numbers in more countries than CompuServe or any of the smaller Internet service provider (ISP) startups One good thing about IBM Net seems to be that the company doesn't promote it very well, and as a result the lines are not always busy In fact, I only had one busy signal in about 20 dial ups If you are planning extensive overseas trips, IBM Net is definitely worth a look

(Warning: Accessing any Internet sites with the extension tw may be a little slow, because the pipes to Taiwan are currently not big The country is making an effort to upgrade them, but its telephone company runs a monopoly so it may take a while.)

What's in a name?

Taiwan has some big companies, but their names don t jump off your lips like major Japanese or Korean companies Tatung, Mitac Acer Umax and First International Computer are some of the biggest There are a number of Taiwanese technology companies that make up for their size deficit by choosing very unique names

Some of the most interesting ones I saw at the show included Strong Man Enterprises Song Cheer, Groovy Peripherals, Act Attractive Computer, Well Run Hardwares and best of all, Handsome Strange International.

A final thought

I would like to dedicate this month's edition to Mr Armond FitzGerald of Calgary Alberta, the father of three of our long-time employees, Patricia, Suzanne and Jennifer. He passed away this month and will be missed by all who knew him

My only link to him was through his daughters and they are ample evidence that he was a good man

Enjoy the issue

Douglas Alder , Editor and Publisher

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[illegible]

LETTERS

Aloha

I just wanted to say, having just moved to Hawaii from Brackendale, B.C., it sure is great to see *The Computer Paper* online. Thanks for all the great info and keep up the great reviews.

Mahalo,
Taylor Moore, via email

Electioneering on the Web

In your July 1997 edition, Jeff Evans' The Last Byte column, "Election Online '97," outlined how the recent election campaign was affected by the Web.

In discussing the Web pages of the various parties, Evans wrote the general comment, "Email, if allowed, was to be simply addressed to an anonymous email address."

From this statement, I can conclude that Mr. Evans must have superficially explored various sites as I know he would have found personal email addresses for the candidates of the Reform Party only two clicks from the main home page.

Doing a quick check myself today, June 24, I found that approximately 73 percent of Reform's candidates had an email contact address. While some were using the email address of someone from their constituency association, many were not, including myself.

Calvin Henry-Cotnam, 1997 Reform candidate, Scarborough East

JE replies: I did indeed find email addresses for some of the individual candidates of the various parties in a variety of candidate lists, both on party Web sites and on various other non-party sites such as the CBC site and Politics Canada. None of those to whom I sent messages, including two Reform candidates, had responded by press time.

However, the comment on the party Web sites was specific to the national party organizations—they generally didn't list individual email addresses of senior officials in the national party headquarters, nor in cases where I was able to locate a party leader's email address, was there any response to my email messages by press time.

I know that everyone in the various parties was more than a little busy during this brief election campaign period, however, the point of my remarks in the article is that although it's not a huge technical burden to set up a discussion forum on the Internet, this doesn't seem to be something that the political parties want to get into. The CBC site did it, and it made that site much, much more interesting, interactive and informative.

It would be worthwhile, I think, to have ongoing, public discussion on the Internet between party leaders, senior party officials, candidates and voters. This was entirely absent from your Web site, and everybody else's.

Private email to candidates, particularly when it isn't answered, does not constitute a forum for public discussion.

Hard drive blues

I'm writing to see if you can help me find out some answers about hard drives. I have TWICE, had my Quantum Fireball 3.8 GB lose ALL my stuff on it and I really don't understand why. I understand that it sometimes happens, but twice?

I have installed everything correctly and was running it OK. The first drive I had for a week and it crashed and wasn't even able to format it. The second, I had for two months and then it died. Does that sound normal? Is there something with Quantum drives? Was there something I should have done to help prevent this? Could I prevent this? Any advice or suggestions would be appreciated.

Lili Wong, via email

SH replies: The conditions you've described sound highly unlikely to occur twice in such a short time period. Regardless of the make of hard drive, whether Quantum or any other brand, hard drive "crashes" such as the one you described are far less likely to occur with today's drives, especially when the drives are so new.

I would recommend you have your controller checked for malfunctions, or a possible setting in your BIOS, which would cause problems. From the sounds of it, all signs are pointing to a bad controller, whether it's on the motherboard or in the form of an ISA/PCI card.

Have you tried placing the failed drives in another system and accessing them that way? For example, hook the drive you were unable to reformat up to another machine and see if you can perform the format that way. If you do not have the resources to do this yourself, ask a friend/colleague for help, and possibly a qualified technician. If indeed the problem is on the controller/motherboard, you would be far better off knowing so you can prevent this problem from happening again.

Big computing just a phase, too

I read your The Last Byte column, June '97, "The resurgence of big computing" with great dismay. It's funny how all journalists enjoy writing about the doom and gloom of the computer industry. Yet, it's still here, as it will be for many many years to come.

I have been in the computer field as a technician since 1978 and although we have what many believe to be the best in computers today, you have to remember, we are still in it's infancy. I don't believe the Bill Gates or Intels of today will be involved in the technology of tomorrow. After all, they are almost at their limits.

Yes, networking is on it's way in, but for only a short period of time. The masses will not get anything out of it. It won't be stimulating to the eyes. You have to remember that today's modems at 56Kbps are pretty slow, as are the sound cards, video cards, CD-ROMs, hard drives, etc. Technology will keep moving ahead as journalists continue to write the doom and gloom messages for deaf ears.

We will have modems capable of possibly 10 times the current baud rates, sound cards at 1 MB, video possibly hitting the gigabyte sphere, CD-ROMs, well let's say unlimited. There will be new technologies, new corporations that will look back on today and think, God, we were prehistoric.

Don't write off the computer yet. Infrared is on it's way. CDs the size of twoonies, capable of holding 1 GB of data. The time is coming for a new wave to hit. I might not see it in my time, but it's coming.

Cal Parsons, via email

TCP replies: Read this month's installment of The Last Byte. Maybe the ideas there will resonate a little more closely with the points you raise.

A tip for removable storage

Thanks for presenting an excellent article in your June '97 issue regarding Removable Storage by Ross MacDonald.

In the sidebar at the end of the article Ross talks about using a hard drive as a backup device. This is quite easy to do and works very well. With the reduced prices on hard disks, this is becoming a viable alternative to tape. It's also fast.

I'd like to point out that a hard drive caddy is available to make hard disks removable. It sits in a 5.25-inch external bay in your computer, and has a pull-out drawer that contains the hard disk. The drives are easily swappable, and you can use this method to test your computer with different operating systems by just changing hard disks. These caddies are around $30 or so, and are available in SCSI or IDE interfaces.

These units don't have fans in them, so I bought a fan and mounted it at the back of the caddy for extra cooling. I've been using these caddies for a while now and they are very convenient, and you get to keep the lid on the computer if you are doing lots of drive swaps. Hope this info helps. I enjoy your publication very much and find it very informative. Keep up the good work!

Harry Yates, via email

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Tile documents vertically	✓	no
Reveal Codes	✓	no
Save workspace	✓	no
Search for any codes	✓	no
Application bar	✓	no
Context sensitive property bars	42	13
Internet*		
Automatic natural language hyperlinks	✓	no
Corel Barista™ (for Java™ publishing)	✓	no
Java applets	✓	no
Formatting Tools		
QuickFonts/font preview	✓	no
Spell check long cap words	✓	no
Guidelines	✓	no
Font preview from drop-down list	✓	no
Styles can include text and graphics	✓	no
User-defined borders and fills	✓	no
Image rotation	✓	no
Make It Fit™ to expand documents	✓	no
Customizable Make It Fit objects (span multiple pages)	5	none
Parallel columns	✓	no
Captions on any side of image	✓	above and below
Border forms	300	100
Multiple character drop caps	50	1
Tables		
Row and column selection	✓	no
Automatic data fill (QuickFill)	✓	no
Format painter tables	✓	no
Automatic calculation	✓	no
Formulas function across tables	✓	no
Number of formulas	50	18
Long Documents		
Create new lists	✓	no
Expand/contract subdocuments individually	✓	no
Predefined document summary fields	11	27
Proofing Tools		
Combined Spell Checker/Thesaurus/Grammar	✓	no
Prompt-As-You-Go	✓	no
Document dictionaries and editable main dictionary	✓	no
Automatic sentence rewrite (PerfectSense™)	✓	no
SGML		
Import/export	✓	no
SGML editing and validation	✓	no
Document creation tools where no DTD	✓	no
Transitioning		
Backward compatibility	✓	no
Convert Corel WordPerfect for DOS macros	✓	no
Use existing Corel WordPerfect for Windows® macros	✓	no
Corel WordPerfect for DOS keyboards	✓	no
Convert Corel WordPerfect 5.x files	✓	import only

Spreadsheet Features	Corel® Quattro® Pro 8	Microsoft® Excel 97
WYSIWYG editable tabs	✓	no
Cell reference checking	✓	no
QuickCell™	✓	no
Copy, cut, paste discontinuous ranges	✓	no
QuickCharacter™ insert	✓	no
Consolidation, budget and scenario experts	✓	no
Sort names list	✓	no
QuickType™ formulas	✓	no
Edit headers/footers onscreen	✓	no
WordPerfect (including tables) and Quicken	✓	no
Quattro® (WKQ/WKE)/Quattro Pro Notebooks (WB2, WB3) imports	✓	no
Formula Composer™	✓	function wizard
Fill-As-You-Go (as "*****")	✓	limited
Corel @functions	500	400

Presentation Features	Corel® Presentations™ 8	Microsoft® PowerPoint® 97
Support for Intel MMX™ technology	✓	no
Publish to Java (Corel Barista)	✓	no
QuickKeys keystroke actions (such as go to another slide, launch an application, play a sound, or even link to a URL)	✓	no
Add multiple slides simultaneously	✓	no
Import external files organization charts	✓	no
Customizable Background Gallery	✓	no
Slide navigation 3D	✓	no
Chart styles	✓	no
Range Highlighter (look in literature)	✓	no
Sort pie slices	✓	no
Separate drawing items	✓	no
QuickWarp objects	✓	no
Slide transitions	300	41
Blend objects together	✓	no
Place/Resize/Rotate chart	✓	[illegible]
Gradient fill (text and objects)	✓	objects only
Quick 3D any image	✓	drawing objects only
Data chart functions (equations)	80	7

Communication Features	Corel® CENTRAL™ 8†	Microsoft® Outlook 97
Create a "Planner" containing a calendar and multiple card files	✓	no
Create an all-day multiday calendar	✓	no
Add freeform notes to calendar	✓	no
Add external items to address book	✓	no
Schedule group events over the network	✓	no
Assign To Do items over the network	✓	no
Follow e-mail threads	✓	no
Compose content-rich HTML messages for assigned To Do items	✓	no
Type personal To Do items directly in list	✓	no
Use the network for long distance calls	✓	no
Edit address book entries in view form	✓	no
Access external newsgroups and corporate discussion groups using mailbox interface	✓	no
Conduct and save a "live" text session	✓	no
Click on hyperlinks to go to linked information	✓	no
Organize cards into groups	✓	no
Participate in collaborative network browsing	✓	no
Sort address book on any field	✓	no
Surf the network using an integrated browser	✓	no
Create simple, flexible card files	✓	no
Link items to documents or applications	✓	no
Have information "pushed" to you for instant access	✓	no

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> *PC Computing*, July 1997

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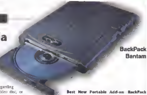
The Computer Paper's Comdex Canada '97 Editors' Choice Awards

BY GRAEME BENNETT AND THE COMPUTER PAPER STAFF



BackPack Bantam

This year's Comdex Canada held in the Metro Toronto Convention Centre (and expanded to include, for the first time the spacious South Hall) amply demonstrated how fast time, in the world of computers, passes. At last year's event our editors witnessed the blossoming of the Internet and all manner of Web authoring tools. This year that seemed old hat and new tools in these areas were surprisingly scarce The dominant themes of this show were DVD digital cameras, ultra portable computers and high performance communications devices

We saw surprisingly few PC or Macintosh systems that impressed us (in fact both IBM and Apple were absent as were Canadian distribution giants Ingram and Merisel) and truly innovative software (with a few exceptions of course) seemed in short supply We smiled occasionally at some of the derivative names and products on display would you believe a trademarked product called "C U C Us" or a company called "Microhard"?

Thus, our Editors Choice Awards this year reflect the dominant trends we noted on the show floor and only a few categories we applauded last year. Our editors traversed the show floor examining products and analyzing their specs and voted the following "best of show"

Panasonic PalmCam

Best new portable Toshiba Libretto 50CT • This super small portable Pentium PC has its limitations—notably, its diminutive keyboard and inability to recharge the battery while the machine is in use, but the inescapable fact remains a 800 g (1 8 lb) machine with a P75 CPU 772 MB hard drive, and an active-matrix color screen running Windows 95 is not only a machine you can take with you it's one you will take with you

Best new Personal Digital Assistant. LG Phenom • A near tie with the Philips Velo and the new Sharp SE-500 "Pilot Killer" receiving favorable mentions from our editors but in the end it was the 770 g (1.71 lb) LG Phenom from LG Electronics that made our short list with its 16 4x9x2.54 cm (6.45x3 76x1 in.) dimensions, Windows CE 1 1 OS built in 28.8Kbps faxmodem Web browser and 4 MB of RAM

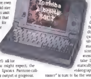
Best new Video Card. Matrox Millennium II • Having already delivered one of the fastest video cards for PCI-based PCs Quebec-based Matrox has outdone itself with the aggressive price and outstanding performance of its new Millennium II—a card that is up to three times as fast as its predecessor with more memory, better 3D features and higher resolution to boot—all for under $400. Although the standard card lacks digital video capture capabilities, these features can be added with Matrox's optional Rainbow Runner card also on display at the show. Addressing another complaint of the original Millennium, the new card includes drivers for HEIDI OpenGL, Direct3D and other advanced graphics APIs plus support for Windows NT 95 3 11 and OS/2. Honorable mention goes to the ATI Xpert@Play, a third-generation ATI graphics card that the company couldn't even provide us with a brochure on but is said to ship in Canada in August

Best Digital Camera. Panasonic PV DC1000 PalmCam • A major theme at the show emerged as it seemed almost every manufacturer had a new digital camera on display with units from Agfa, Canon Casio, Chinon, Epson, Fuji, Kodak Minolta Olympus, Panasonic Polaroid, Ricoh, Sharp, Sony and many other manufacturers on display But Panasonic had not only our favorite unit the $699 PalmCam, touted as the world's smallest digital camera at 9x5 9x3 cm (3 55x2.36x1.25 in) but also showed the KXL-600A CoolShot, another diminutive model for $599 that saved images on an included PCMCIA card for super-easy data transfer with standard portable PCs

Best Gadget We Can t Afford Hitachi MP-EG1A MPEGCAM • It functions like a camcorder capturing up to 20 minutes of full-motion MPEG video and audio data It has goodies like a 6x zoom and a printing option. It can capture 1 000 still images each with 10 seconds of audio. At about $3,500 would we buy one? No. But what a toy to wish for this Christmas..

Best Low cost Color Printer Lexmark JetPrinter 1000 • As the first color printer we've seen that breaks the $200 price barrier this is not only a line printer from an initial cost perspective, but it is also notable for its excellent color reproduction—especially on Lexmark's high-quality coated paper. In fact, our editors suspect Lexmark may be selling these printers as if they were razors—priced at rock-bottom to get them into the home, where the cost of consumables will generate more revenue then the price of the printer itself

Best Professional Color Printer Epson Stylus Color 3000 • Considering that we own the Epson Stylus XL tabloid-size color inkjet printer that this unit effectively replaces the fact that it includes so much more for the same price hurts a little but adds up to great value for those who need a printer with Adobe PostScript Level 2, oversize printing of sheets up to 17x 22 in. (full-bleed on tabloid paper) all for about $1 700 And, as you might expect, the Mac and PC-compatible Epson's Pantone-calibrated 1 440x720-dpi color output is gorgeous.



Best New Software Application. Adobe Illustrator 7 • We saw demos of Internet Explorer 4 0 FrontPage 98 WordPerfect 8 and hundreds of other applications for Windows and Macintosh at the show but after we'd seen them all the only program we could all agree on was Adobe Illustrator 7 0 The program, now for Mac and Windows PCs puts the heat under Corel's tail and raises the bar for professional vector graphics apps As you might expect from the inventors of the PostScript page description language Illustrator 7 speaks PostScript fluently and offers accurate on screen color with its CMYK display

Best Digital Video Player RealmagicDVD • The momentum building over the last few months regarding DVD—digital video disc, or digital versatile disc depending on what magazines you read (we prefer the former)—seems to have crested at this year's Comdex Canada 97 DVD players were nearly everywhere with standalone and computer-based players noisily on display in literally dozens of booths While the first generation of computer-based DVD add-ons such as the Creative Labs DVD kit or the Panasonic equivalent (which, in fact, is based on the same design) had somewhat lower image quality than we had hoped for, the RealMagic product was truly superior and at only about $50 more than its competitors not unreasonably priced Be aware that, on many of the demo discs that DVD players often use for demonstrations, the "bit rate" is carefully set to not exceed the medium's 10Mbps maximum. (We checked this with a Sony DVD player also on the show floor) Scenes with a lot of action are the best ones to test out a DVD player with. The RealMagicDVD came through (literally) with flying colors—displaying almost none of the horizontal lines or obvious artifacts that mar some lesser video players

Best New Digital Video Technology DPS Spark Firewire Adapter • Firewire, the IEEE 1394 spec pioneered by Apple and due to appear in next year's Memphis operating system from Microsoft is already making appearances in several products on display at the show Sony has Firewire connectors on its digital still cameras and DV full-motion video products and Firewire interfaces for PCs were on display from Miro (the DV 100) and DPS with its Spark However, the $889 Miro card like some other low-cost DV solutions supports DV in but does not support DV out (Miro says the card is intended primarily for CD-ROM authoring) At $1325 with a full version of Adobe Premiere, or $930 without the software, the DPS Spark is the lowest cost Firewire card we've seen that handles both in-and-out functions, making all digital transfers of high quality digital video possible at prices that surely make owners of professional-level analog equipment cringe Make no mistake DV technology is dramatically changing the face of videography and the "prosumer" is sure to be the winner.

Best New Storage Technology Pinnacle CD-RW • Undoubtedly by this time next year, recordable DVD technology will be widely available but for now Pinnacle's $799 rewritable compact disc system represents one of the best ways of recording data onto a disc that can be read by a vast array of machines currently in the workplace. Encouragingly the Pinnacle rep says that the unit reads 98 percent of existing CD ROM and CD-R discs, too For those who prefer compatibility with floppy disks, LS-120 drives with their compatibility with 720K, 1 4MB and 120MB floptical disks made a strong showing as well. Elsewhere advanced storage solutions from Toray (PD Dual phase drives) Iomega and others were in evidence as well

Best New Portable Add-on BackPack Bantam parallel port CD-ROM drive • The problem with portables, unless you're lucky enough to be able to afford one of the top-of the line models, is their lack of a CD-ROM drive With the software of today increasingly shipped on CD-ROM discs, this is more of a problem than ever. For CD-less portable owners relief is spelled BANTAM. This stylish unit is available in two models: one with a sound card and an 8x CD-ROM mechanism for $459, and without a sound card for $399

Best Desktop System Sound Card Creative Labs AWE64 Gold • There are better PC sound cards and there are cheaper sound cards but our editors unanimously agreed that this card, which improves upon several aspects of previous Creative Lab designs, while retaining an impressive level of compatibility offers the best bang for the buck. Musicians many of whom are familiar with the company EMU that Creative Labs now owns, as well as PC experimenters will be better served by the deluxe version of the card, which includes 4MB of onboard RAM an ATAPI CD-ROM interface and several pieces of software not present in the lower-priced Value Edition Targeted at gamers and price-conscious home users, the Value Edition includes 512 KB of memory both versions eliminate the on-board amplifier found in previous Sound Blaster cards, resulting in lower noise and better fidelity

Best low-cost color scanner Storm EasyPhoto SmartPage Pro • Another tough call, with Agfa's excellent $599 SnapScan 600 delivering both superior image quality and a great software bundle (including the excellent Visioneer PaperPort software a new package called Photo Express from Ulead and, in the "Artline" version for a hundred dollars more an additional bundle—not yet shipping—of Kai's Photo Soap, Bryce 2 SE, Convolver and Kai's Power Tools) but for bang for the buck, it's hard to beat the under $200 price point of the Storm EasyPhoto SmartPage Pro The unit which attaches easily to any PC's parallel port easily bested the image quality of competing units from Hewlett Packard Microtek and Visioneer (which is showing its new Strobe model), and costs less than all of them.

Best Connectivity Product: Xircom Ethernet 10/100 and 56Kflex Modem • Although we're not convinced Rockwell/Lucent's 56Kflex modem technology is superior to 3Com/US Robotics X2 standard (X2 seems to be faster in most tests), even USR reps admit that 56Kflex has a bigger share of the modem market at this point then X2. But combine a modem that is up to 44 percent faster then the average 28.8Kbps modem and throw in both 10Mbps and 100Mbps Ethernet capabilities and you've got a combo card that is worth carrying around. Best of all the Xircom card doesn't use a huge clunky dongle like some of its competitors. While it's important to check what kind of 56K modem technology your Internet service provider supports before buying a new modem if you choose to go with 56Kflex this is our portable pick

Congratulations to all this year's winners. For more on *TCP's* Editors Choice Awards and Comdex Canada 97 events. check out our Web site at http://tcp.ca ❑

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Corrections

Forgot the tilde

In the computer camps article in our July issue, we listed Computers of Kids' Web address incorrectly. It should be http://www.escape.ca/~c4k. We left out the tilde (~) before the ck4.

They're both in Ottawa but ...

We also said in the kids' camps article that the Virtual Ventures camps began at the University of Ottawa. In fact, it was at Carleton University. Our apologies to Carleton.

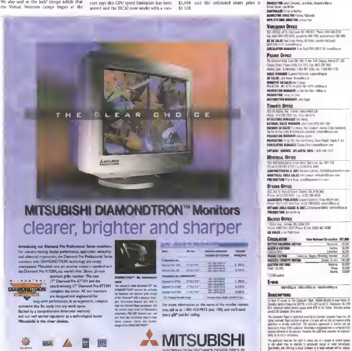
Getting up to speed

The article "Professional video on the cheap," in the July issue, incorrectly stated that the miro DC30 video capture card does not work certain CPUs. Prior to December 1996, the miro DC30 did have problems working with CPUs faster than 200 MHz, but a miro technician says this CPU speed limitation has been solved and the DC30 now works with a variety of CPUs operating at 200 MHz or faster, including Pentiums and Pentium Pros.

Also, the specific CPU speed limitations of the Truevision Bravado mentioned in the same article have also been solved.

The price isn't right

In the July Lab Test "Maxed-out mid-range systems," we incorrectly included the reseller price of $1 411.75 for the A-Open unit. The correct suggested retail price for this system is $1,698 and the estimated street price is $1 528.



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Compaq vice president Tim Harris was on hand for the unveiling of the Deskpro 4000N at PC Expo in New York.

Compaq launches NetPC

BY GEOF WHEELWRIGHT

The NetPC finally became reality in New York in mid-June as dozens of personal computer makers stood four-square behind industry leaders Microsoft and Intel to declare their support for a new breed of desktop computer.

The NetPC will cost less than existing personal computers but will be more limited in function, relying a lot more on using information and software delivered over a local area network (LAN) or the Internet

The biggest credibility boost to this idea came with the news that market leader Compaq was to enter the market and at PC Expo, it showed the product that will be its first entrant. It is a lower-cost system called the Compaq Deskpro 4000N

This machine will come equipped with a network interface card (NIC), 32 MB of RAM, an Intel MMX processor, an internal hard drive, a choice of operating systems, network management software and a World Wide Web browser for significantly less than $2,000 The company promises it will start shipping systems by the fourth quarter of this year.

Compaq, which was one of the five authors of the NetPC specification, is also supporting Microsoft's Zero Administration Kit to the Deskpro 4000N This will (so the theory goes) allow systems administrators to centrally deploy over a network the software applications and configuration settings for a particular user's needs

"The combination of the Compaq Network PC with Microsoft Zero Administration for Windows provides our mutual customers a very easy-to-use and manageable desktop platform," suggested Rich Tong, vice-president of marketing for Microsoft's personal and business systems group.

In an attempt to position the NetPC against the heavily promoted Network Computer—or NC—Intel chairman and chief executive officer Andy Grove has been particularly vocal on the issue of how good a platform the Microsoft/Intel backed NetPC will be for running software based on the Java programming language

"The NetPC delivers performance on Java absolutely as good or better than the equivalent and runs all of the PC applications, which helps us make the PC and the NetPC, the Intel architecture, all together as the no risk, no compromise choice for Java applications," he said in an earlier presentation on the NetPC "There is no need for either of those, because we can match the performance and you don't have to compromise, because we carry all the PC applications as well as the Java applications."

Microsoft's chief Bill Gates has also been vocal on why the NetPC is important—and a very different proposition from the NC backed by Oracle head Larry Ellison "It [the NetPC] is just a very tightly specified PC It is a PC, it runs all the PC applications " he said in a recent speech. "It has remote booting capability, so the latest operating system always comes down. It's got this on now capability so you don't need to reboot the machine. It automatically turns off the power drain so you just keep it running, when you come back to use it, it wakes up and it's right there All the data you had (is) immediately available to you "

Gates also took a dig at the NC. "It's hard to know what the NC stands for, because some of them have many different processors. Some have disks some don't. They have many different user interfaces " Gates said of the Oracle-backed system. "There's at least 14 different operating systems and 16 different browsers there But there is one thing that the NC stands for, and that is not being compatible " ❑

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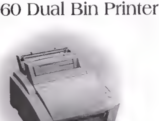

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233MHz w/512KB L2	$2,465
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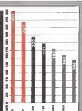

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1.44MB Floppy Drive
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150MHz	$1,000	166MMX	$1,155
166MHz	$1,035	200MMX	$1,280

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3 Button MS Compatible Mouse
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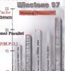

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Windows NT Server v4.0 upgrade w/10 Clients Lic.	$[illegible]
Windows NT Workstation 4.0 CD	$300
Windows NT Workstation 4.0 upgrade	$160
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BackOffice v2.5 Server CD	$3130
Microsoft SMS version 1.2 w/10 Clients Lic.	$1425
Microsoft SMS version 1.2 w/25 Clients Lic.	$[illegible]
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Network Printers

HP 5N Laserjet,600dpi,12ppm,6MB	$1[illegible]
HP 5Si Laserjet,600dpi,24ppm 4MB	$[illegible]
HP5Si NX Network Ready 600dpi,24ppm	$[illegible]875
HP 5Si Mopier	$[illegible]
HP 4V Laserjet,600dpi, 16ppm	$[illegible]
HP 4MV Laserjet,600dpi, 16ppm	$[illegible]
Lexmark Optra N,24ppm 4MB	$3[illegible]
Lexmark Optra S 1250 12ppm,4MB	$1[illegible]
Lexmark Optra S 1250N 12ppm 4MB Ethernet	$[illegible]
Lexmark Optra S 1650 16ppm,4MB	$1870
Lexmark Optra S 1650N 16ppm,4MB,Ethernet	$2300
Lexmark Optra S 2450,24ppm,4MB	$[illegible]
Lexmark Optra S 2450N,24ppm 4MB,Ethernet	$3790
Lexmark Optra C [illegible] 16MB	$6710
Lexmark Optra C [illegible] 16MB	$[illegible]

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Exabyte Eagle TR-3 Int. Backup Drive	$217
Exabyte Eagle TR-3 Int. Backup Drive w/host	$286
Exabyte 8705LT 5-10GB Ext 8mm Drive	$1370
Exabyte 8900EL 20-40GB Int/Ext 8mm Drive	$5780/6130
Exabyte Eliant 820 14GB Int/Ext Tape Drive	$1870/2040
Iomega Ditto Easy 800 Int/Ext	$140/2[illegible]
Iomega Ditto 2GB Int/Ext Tape Drive	$210/280
Iomega Ditto 3200 3.2GB Int/Ext	$280/350
Hewlett Packard SureStore CD-R [illegible]	$[illegible]
Seagate 4326NT 2GB 4mm DAT Int. SCSI Drive	$778
Seagate 4324NP 4GB 4mm DAT Int. SCSI Drive	$888
Seagate 4386NP 4GB 4mm DAT Int. SCSI Drive	$1140
Sony SDT-5000 Int/Ext 4-8GB DAT	$1080/1395
Sony SDT 5200 Int/Ext 4GB DAT	$1085/1090
Sony SDT 7000 Int/Ext 4-8GB DAT	$1080/1510
Sony SDT 9000 Int/Ext 24GB DAT	$1770/1880

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BackUPS 200/280	$128/148
BackUPS 400/450	$185/255
BackUPS 600/900/1250	$340/495/630
Backup Pro 280/420/650	$255/346/418
BackupPro 1000/1400	$547/700
SmartUPS 450/700/1000	$530/630/880
SmartUPS 1400/2200/3000	$800/1465/2320
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PowerManager 5 Outlet	$85
PowerNet SNMP agent for Novell	$107

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Assembly, 10 BaseT Cable 100 ft	$45
Cable, 10BaseT 8c UTP per ft	$0.35
Cable, 10BaseT 8c UTP per 1000 ft	$220
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Tool BNC Crimping	$80
Terminator BNC 52 ohm w/ground [illegible]	$10

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3COM X Jet Etherlink + BNC ea/5+	$270/240
3COM 3C509B Etherlink III BNC ea/5+	$146/155
3COM 3C509B Etherlink III BNC 25 pk	$2400
3COM 3C509B Combo BNC/RJ45 ea/5+	$166/140
3COM 3C509B Combo BNC/RJ45 20 pk	$2800
3COM 3C509B Combo BNC/RJ45 100 pk	$11[illegible]
3COM 3C592 Combo BNC/RJ45 EISA	$242
3COM 3C900 PCI Etherlink III Combo	$180
Cnet CN650E + BNC & 10BaseT Ethernet	$40
CNet CN800E PCI Ethernet Combo	$60
D-Link DE-220PCT ISA Ethernet Combo	$40
GVC 2806BT ISA Coaxial/10BaseT Jumpless	$60
GVC 2808BT PCI Coaxial/10BaseT Jumpless	$80
Intel ISA EtherExpress Pro 10+ Combo	$180
Intel ISA EtherExpress Pro 10+/Flash Combo	$180
Intel PCI EtherExpress Pro 10+ Combo	$167
SMC 8416B ISA EtherEZ Combo	$128
SMC 8416BT ISA EtherEZ Combo	$145
SMC 8432BT PCI EtherPower Combo	$180

Print Servers

Emulex NetQue 10BaseT 2 Print Server	$580
Emulex NetJet NT + Print Server	$420
HP JetDirect J2550B RJ45	$430
HP JetDirect J2552B RJ45/BNC/LocalTalk	$600
HP JetDirect J2556B Token Ring DB-9 & RJ45	$720
HP JetDirect EX Plus J2591A	$400
HP JetDirect EX Plus3 J2593A RJ45/BNC	$600
HP JetDirect EX Plus3 J2594A Token Ring DB-9 & RJ45	$700
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Intel NetportExpress Pro Ext. Printer Server	$630
Intel NetportExpress Pro Int. Printer Server	$370
Intel NetportExpress Pro/100 Ext. Printer Server	$457

PCMCIA Adapters

3COM 3C589D Etherlink III TPO	$178
3COM 3C589D Etherlink III Combo	$241
3COM 3C562D-TP Etherlink III TPO + 33.6bps Modem	$430
D-Link DE-660CT PCMCIA Combo NE2000 Compatible	$102
D-Link DME 336T Ethernet/Modem	$300
SMC 8020T EtherEZ PC Card (RJ45)	$170
SMC 8020BT EtherEZ PC Card Combo	$[illegible]
Xircom PCMCIA Ethernet RJ45	$180
Xircom PCMCIA Ethernet BNC & RJ45	$[illegible]
Xircom PCMCIA RJ45 Ethernet + 28.8bps Modem	$455
Xircom PCMCIA Combo Ethernet + 33.6bps Modem	$475
Xircom PCMCIA Ethernet + 28.8bps Modem (Mini-Book)	$536
Xircom PCMCIA 10/100 Ethernet + 56K Modem	$497
Xircom PCMCIA 10/100 Ethernet Ready	$195
Xircom CardBus 10/100 Ethernet Card	$215

10 BaseT Hubs

3COM [illegible] Hub 12 Port	$385
3COM 3C16441 SuperStack II Entry Hub 24 Port	$505
3COM 3C16405 SuperStack II PS Hub 40 12 Port	$605
3COM 3C16406 SuperStack II PS Hub 80 24 Port	$1150
3COM 3C16670A SuperStack II Hub 10 12 Port	$[illegible]
3COM 3C16671A SuperStack II Hub 10 24 Port	$1020
3COM 3C16675B SuperStack II Hub 10 48 Port	$[illegible]
3COM 3C16590 SuperStack II Dual Speed Hub 12 Port	$1810
3COM 3C16591 SuperStack II Dual Speed Hub 24 Port	$2540
3COM 3C16700 OfficeConnect 8/TPO	$108
3COM 3C16701 OfficeConnect 8/TPC	$505
3COM 3C16710 OfficeConnect 8/TPM	$525
CNet CN8STPC 8 Port Hub	$110
CNet CN8816TPC 16 Port Hub, Small Footprint	$250
D-Link DE 808 TPC 8 Port Hub	$90
D-Link DE-809TC 8 Port Hub	$125
D-Link DE-812TP 12 Port Hub	$2[illegible]0
D-Link DE-816TP 16 Port Hub	$245
D-Link DE-824TP 24 Port Hub	$303
Hewlett Packard AdvanceStack Hub 8 Port	$205
Hewlett Packard AdvanceStack 10BT 24T w/Manage	$1295
Hewlett Packard AdvanceStack 10BT Switching Hub-12R	$[illegible]
Hewlett Packard AdvanceStack 10BT Switching Hub-24R	$1138
Hewlett Packard AdvanceStack 10BT Switching Hub-24T	$1185
Netgear EN104TP 4 Port Hub	$[illegible]
Netgear EN108TP 8 Port Hub	$[illegible]
SMC 3608T-EZ 8 Port Hub	$217
SMC 3608TC-EZ 8 Port Hub	$145
SMC 3616TC-EZ 16 Port Hub	$400
SMC 3608TA Tigerhub 8 Port Hub	$[illegible]
SMC 3208BC Tigerhub 8 Port Hub BNC	$[illegible]
SMC 3608FG Tigerhub 8 Port Fibre	$[illegible]
SMC 3312TC TigerStack 12 Port Hub	$[illegible]
SMC 3324TC TigerStack 24 Port Hub	$1105
SMC 3324T TigerStack 24 Port Hub	$[illegible]

10 BaseT Adapters

3COM 3C509-10 TP ea/5+	$278/240
3COM 3C509B TPO ea/5+	$115
3COM 3C592 TPO EISA	$252
3COM 3C900 TPO PCI	$135
D-Link DE-220ET ISA Ethernet 10BaseT	$[illegible]
D-Link DE-530ET PCI Ethernet 10BaseT	$[illegible]
HP J3236A ISA 10BaseT	$[illegible]
HP PCI Lan Card 10BaseT	$[illegible]
Intel ISA EtherExpress Pro 10+ 10BaseT	$102
Intel ISA EtherExpress Pro 10+/Flash 10BaseT	$410
Intel PCI EtherExpress Pro 10+ 10BaseT	$[illegible]
Microdyne NE 2000T+ 10 BaseT	$[illegible]
Microdyne NE2500+ Full Duplex	$[illegible]
Microdyne NE3200 EISA Combo	$[illegible]
Microdyne NE5500T PCI 10BaseT	$[illegible]
Microdyne EtherMax PCI 10BaseT	$[illegible]
SMC 8416T ISA EtherEZ 10BaseT	$[illegible]
SMC 8432T PCI EtherPower 10BaseT	$[illegible]

100 Mbps Systems

3COM 3C905 TX PCI Fast Ethernet Adapter
$99.00

3COM 3C905-TX FastEthernet PCI	$[illegible]
3COM 3C597 TX FastEthernet EISA	$325
3COM 3C16720 FastEthernet 8 Port Hub	$825
3COM 3C250-TXR SuperStack II 100 12 Port Hub	$[illegible]
3COM 3C250-T4 SuperStack II 100 12 Port Hub	$1820
D-Link DFE-500TX PCI FastEthernet	$[illegible]
D-Link DFE-808TX FastEthernet 8 Port Hub	$835
Intel Pro 100 EISA FastEthernet	$[illegible]
Intel Pro 100 PCI FastEthernet	$[illegible]
Intel Pro 100 PCI Server Adapter	$[illegible]
Intel Pro 100 Smart FastEthernet	$[illegible]
Intel Express 10/100 Stackable Hub	$[illegible]
Intel EC100TX Express 100Base-TX 16 Port Hub	$2120
HP Networks 100VG ISA Adapter	$[illegible]
HP Networks 100VG PCI Adapter	$178
SMC Etherpower 10/100Base-T PCI	$[illegible]
SMC Etherpower 10/100 PCI Dual Channel	$[illegible]
SMC 5208x TigerHub 10/100 8 Port Hub	$890
SMC5324x TigerHub 10/100 24 Port Hub	$2750

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2.1GB	ST32171N	8ms	512K	7200	ULTRA SCSI	$ 875
2.1GB	ST32171W	8ms	512K	7200	ULTRA WIDE	$ 755
2.1GB	ST52160N	11ms	128K	4500	ULTRA SCSI	$ 368
2.3GB	ST32272N	8ms	512K	7200	ULTRA SCSI	[illegible]
2.3GB	ST32272W	8ms	512K	7200	ULTRA WIDE	$795
4.3GB	ST34371N	8ms	512K	7200	ULTRA SCSI	$1005
4.3GB	ST34371W	8ms	512K	7200	ULTRA WIDE	$1075
4.5GB	ST34572N	8ms	512K	7200	ULTRA SCSI	$1035
4.5GB	ST34572W	8ms	512K	7200	ULTRA WIDE	$1105
4.5GB	ST34501N	7.5ms	512K	10000	ULTRA SCSI	$1170
4.5GB	ST34501W	7.5ms	512K	10000	ULTRA WIDE	$1234
9GB	ST19171N	9ms	512K	7200	ULTRA SCSI	$1800
9GB	ST19171W	9ms	512K	7200	ULTRA WIDE	$1880
9GB	ST19101N	7.5ms	512K	10000	ULTRA SCSI	$2080
9GB	ST19101W	7.5ms	512K	10000	ULTRA WIDE	$2135
23GB	ST423451N	13ms	2MB	5400	ULTRA SCSI	$3680
23GB	ST423451W	13ms	2MB	5400	ULTRA WIDE	$3730
2GB	WD2170-0003	8ms	512K	7200	ULTRA SCSI	$ 660
2GB	WD2170-0007	8ms	512K	7200	ULTRA WIDE	$ 710
4GB	WD4360-0003	8ms	512K	7200	ULTRA SCSI	$1005
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- Gouraud shading
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OXYGEN OpenGL Card

Design and manipulate complex models and scenes in real time! These cards are pure creative fuel for 3D acceleration.

Oxygen 102

The Oxygen 102 accelerator card delivers high-end 3D graphics performance at PC prices. This card targets the performance hungry markets of animation, visualization and CAD/CAM.

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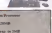

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2650CD	150mmx	16MB	1.44GB	10X	12.1 DSTN	$3,600
2650CD	150mmx	16MB	1.44GB	10X	12.1 TFT	$5,0[illegible]
6050MH	150mmx	16MB	1.44GB	10X	12.1 TFT	$5,550
6050MH	150mmx	16MB	2.1GB	10X	12.1 TFT	$6,[illegible]
6050MX	150mmx	16MB	2.1GB	10X	12.1 TFT	$6,450
[illegible]	150mmx	16MB	[illegible]	10X	12.1 TFT	$6,[illegible]
6200MX	166mmx	32MB	2.1GB	10X	13.3 TFT	$8,100
6200NT	166mmx	32MB	2.1GB	10X	13.3 TFT	[illegible]

IBM

ThinkPad

Model	CPU	RAM	HDD	CD	Display	Price
[illegible]	[illegible]	16MB	[illegible]		12.1 DSTN	$3,[illegible]
380D	P150	16MB	1.35GB	8X	12.1 DSTN	$3,440
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12.1 TFT	[illegible]
560	P133	8MB	2.1GB		11.3 DSTN	$3,530
560E	P150	16MB	[illegible]		11.3 DSTN	$3,600
560E	P166	16MB	2.1GB		12.1 TFT	$6,175
760E	P150	16MB	[illegible]		[illegible] TFT	[illegible]
760EL	P133	16MB	2.1GB		12.1 TFT	$6,130
760ED	P133	32MB	2.1GB		12.1 TFT	$7,300
760XL	166mmx	16MB	2.1GB		12.1 TFT	$7,040
760XD	166mmx	32MB	3.0GB	8X	12.1 TFT	$9,190
765L	P166	32MB	3.0GB		13.3 TFT	$8,740
765D	P166	32MB	3.0GB	8X	[illegible] TFT	$9,600

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3.75 lbs

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800CT	166mmx	16MB	2.1GB		10.4 TFT	$5,95[illegible]
5700CT	150mmx	16MB	2.1GB		12.1 TFT	$6,180
5700CT	166mmx	16MB	2.1GB		12.1 TFT	$6,470
5700CT	166mmx	32MB	3GB		12.1 TFT	$7,400

TEXAS INSTRUMENTS

Model	CPU	RAM	HDD	CD	Display	Price
[illegible]	166mmx	16MB	1.35GB	10X	12.1 DSTN	Call
660CDT	166mmx	16MB	2.1GB	10X	11.3 TFT	$4,900
900	P100	16MB	1.35GB		12.1 DSTN	$[illegible]
900T	P133	16MB	1.35GB		11.3 TFT	Call
900CDT	P150	16MB	1.35GB	10X	11.3 TFT	$4,400
6050	P150	16MB	1.35GB		12.1 TFT	$4,825
6050NT	P150	32MB	2.1GB	10X	12.1 TFT	$5,790
6160	166mmx	32MB	2.1GB	10X	12.1 TFT	$7,100
6160NT	166mmx	32MB	2.1GB	10X	12.1 TFT	$7,500

HITACHI

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Model	CPU	RAM	HDD	CD	Display	Price
MX133	P133	16MB	1.35GB	8X	12.1 TFT	$3,86[illegible]
MX150	150mmx	16MB	2.1GB	8X	12.1 TFT	$5,490
MX166	166mmx	16MB	2.1GB	8X	13.3 TFT	[illegible]

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Lithium Ion Battery
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3 YEAR

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2MB Video RAM
12.1" TFT Active
10X CD ROM
Built-in Sound System
33.6/14.4KBps Data/Fax/Voice Modem

3 YEAR

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133MHz Intel Pentium MMX
16MB RAM exp to 144MB
1.37GB Hard Drive
2MB EDO Video RAM
12.1" TFT Active
10X CD ROM
33.6/14.4KBps Data/Fax/Voice Modem
Built in Sound System

3 YEAR

Satellite 220CDS

133MHz Intel Pentium
16MB RAM exp to 144MB
1.37GB Hard Drive
2MB EDO Video RAM
12.1" Dual Scan
10X CD ROM
Built in Sound System

Model	CPU	RAM	HDD	Display	Price
220CDS	[illegible]	[illegible]	[illegible]	[illegible] DSTN	[illegible]
430CDT	P120	16MB	1.3GB	11.3 TFT	$3,250
440CDX	P133	16MB	1.3GB	12.1 DSTN	$3,[illegible]
440CDT	P133	16MB	1.3GB	12.1 TFT	$4,840
[illegible]	[illegible]	[illegible]	[illegible]	[illegible] TFT	[illegible]
510CDT	P133	16MB	2.1GB	11.8 TFT	$4,840
520CDT	P166	32MB	2.1GB	[illegible]	[illegible]
530CDT	P166	32MB	2.1GB	12.1 TFT	$7,250
300CT	P133	32MB	[illegible]	[illegible] TFT	[illegible]
740CDT	P166	16MB	3.0GB	13.3 TFT	$8,315
300CT	P75	[illegible]	[illegible]	[illegible] TFT	$2,[illegible]

PCMCIA / MODEMS

Adaptec APA-1460A [illegible]	$140.00
Adaptec APA-1460A [illegible]	$239.00
3Com 3C589D-TP Etherlink III PCMCIA	$179.00
3Com 3C575-TX FastEthernet 10/100 CardBus	$209.00
3Com 3C574-TX FastEthernet TX 10/100	$228.00
Eiger Labs [illegible] Flash Memory Card	Call
Eiger Labs SCSI-2 Adapter Card	$189.00
Eiger Labs PCMCIA 33.6K Cellular Ready	$249.00
Extended Sys Port Replicator(Toshiba Notebook)	Call
Intel EtherExpress Pro 100 16bit PC Card	$229.00
Intel EtherExpress Pro 100 32bit Card Bus	$265.00
Megahertz XJ10BT PCMCIA 10BaseT Ethernet	$147.00
Megahertz XJ10BC PCMCIA Ethernet Combo	$179.00
Megahertz XJ1336 33.6 Modem 56K upgrade	$295.00
Megahertz XJ3336T 33.6 Modem + 10BaseT	$425.00
Megahertz CC3336T 33.6 Modem + 100BaseT	$425.00
Megahertz XJ4336W 33.6 X-Jack Cell-Motorola	$352.00
Megahertz CC4336 33.6 PCMCIA Modem	$327.00
Megahertz XJ4336 33.6 X-Jack Modem	$327.00
Megahertz XJ1560 x2 Technology w/XJack	$328.00
Micro Solutions Backpack Parallel 4X CD-ROM	$285.00
Micro Solutions Backpack 4X CD-ROM w/Sound	$385.00
Micro Solutions Backpack Parallel 4X CD-ROM	$610.00
Motorola Montana 33.6 Modem w/Cell Phone Cab	$285.00
Motorola Mariner 33.6 Modem w/10BaseT	$440.00
New Media BASICS SCSI Adapter HD50	$120.00
New Media BASICS SCSI Adapter DB25	$129.00
New Media WavJammer Sound Card	$288.00
New Media GameJammer PCMCIA PnP	$245.00
New Media BASICS Game Port	$89.00

[illegible]

[illegible]	$43.00
[illegible]	$36.00
Universal Notebook Case CUN1	$19.00
[illegible] Notebook Case CLN1	$129.00
[illegible] Notebook Case CFP3	$50.00
[illegible] Premier Notebook Case CF90	$100.00
Convertible Bookpack Case CCB1	$[illegible]
Prestige Leather Case CLP3	$301.00
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WHAT'S NEW

IBM announces 8.4 GB drive • IBM has announced its Deskstar 8, the first 8 GB hard disk drive. The Deskstar 8 is the first PC drive to incorporate the IBM MRX (Magneto-resistive Extended) head technology which can store 1.74 billion bits per square inch. MRX head components are the size of a pinhead, and send out stronger magnetic signals than previous heads, enabling the reading and writing of larger amounts of data in smaller spaces on a drive platter.

"We're marketing this drive to the high-performance desktop PC drive market, where business and home users demand the highest-capacity disk drives," according to Kevin Reims, director of desktop and entry server storage products at IBM's storage systems division.

As a way to make the data storage capacity of an 8 GB drive more real, IBM gave this illustration: if 8 GB of data was printed out onto paper, the stack of pages would be higher than the Eiffel Tower in Paris, or over 300.5 m (985.9 ft.) —JE

Contact: IBM. Web site: http://www.storage.ibm.com

3COM US Robotics merger completed • 3Com Corp. and US Robotics Corp. have finalized their merger into a single firm, which will use the 3Com name. The merger, which was official June 12 following approval by shareholders of both companies a day earlier, is the largest in the history of the data networking industry.

"The combination of 3Com and US Robotics creates a networking powerhouse in the continuing development of enterprise and carrier networks while helping usher in a new era of simple, fast network access for small businesses and consumers," says 3Com chairman Eric Benhamou.

"The next wave of growth in networking will be led by companies that offer faster access to the network, that build more intelligence into the network, and that lower the cost of network ownership. The new 3Com is now best positioned to meet and surpass these requirements and deliver our solutions to the broadest set of customers in the industry."

While not as familiar a name as US Robotics, 3Com has long been a leader in networking products and technology development. The merged company will include all of US Robotics' product lines under the 3Com brand, including the Palm Pilot pocket organizer, X2 modem technology and the entire US Robotics line of modems, switches and routers, and videoconferencing products. —JE

Contact: 3Com. Tel. 800-NET-3COM
Web site: http://3com.com

Fujitsu to bundle Zi-Mail with PCs sold in Hong Kong • TOKYO (NB)—Calgary based Zi Corporation says it has signed a deal with Fujitsu under which the PC maker will bundle copies of the Zi-Mail Chinese electronic mail client with every computer sold in Hong Kong in the next four months.

"We have been increasingly receiving requests for Chinese language applications in this region. I was impressed with Zi Mail and am pleased we can distribute it in Hong Kong. We believe Zi Mail has many unique features and with the increasing need here for electronic communication in Chinese, Zi Mail provides a true Chinese Language solution," said Walter Mok, Fujitsu's Hong Kong manager for PC marketing. —*Martyn Williams*

Contact: Zi Corp. Web site: http://www.zicorp.com

WACOM's debuts "electric paper" • Anyone who likes to draw or paint with traditional tools like pencils and paintbrushes knows drawing with a mouse is a bit like trying to draw with your eyes closed, using a brick.

At the recent PC Expo in Atlanta, the neatest gadget of the entire show was tucked away in a corner of the WACOM booth, amazing the awestruck crowds. This new product was the PL-300 Display Tablet, a device that closely mimics a traditional sheet of paper or canvas while offering the user access to all the tools of modern computer graphics technology.

Graphics tablets, which are input devices that connect to a Mac or a PC, are basically flat surfaces that can receive input from a pressure sensitive stylus. They're much more natural tools for sketching, tracing and drawing than a mouse.

However, even the best of previous graphics tablets suffer a fundamental flaw. Tablets dissociate the traditional artist's hand/eye feedback loop where the user sees his or her hand, drawing tool and the drawing surface all in one place.

With a typical graphics tablet, the user has to look up at a computer monitor screen, while trying to correctly move the hand holding the stylus, which is down out of sight on the tablet.

Now WACOM, the leading Mac and PC graphics tablet maker, has introduced a graphics tablet whose surface is a high resolution LCD screen. When the user looks down on the tablet, he or she sees the computer screen image, complete with menus and the drawing space. The user can draw on the PL-300 tablet with a pressure sensitive stylus about as naturally as if he or she were holding a traditional pencil or chalk stick. When we tried this device, using Fractal Painter software and a variety of digital tool types, pen and ink, chalk, watercolor and pastel, the experience was very natural, tactile and stimulating.

Drawbacks to the PL-300? Well, first of all, alas, it is not cheap. The price is about US$2,500. And secondly, even if you had the money you'd have to wait in line. A WACOM representative claimed it is selling faster than they can keep up with it. On the "drool factor" scale from one to 10, it rates an 11. —JE

Contact: Wacom. Tel. 800-922-6613
Web site: http://www.wacom.com

Corel moves some Ottawa Java jobs to Utah • OTTAWA (NB)—Aligning Java-related development with the existing distribution of its software staff, Corel Corp. is moving work on the Java versions of Quattro Pro and Corel Presentations software from its Ottawa headquarters to Orem, Utah. It is not clear how many positions will be affected, but the company said it will continue hiring more Java programmers at both locations.

Orem is the headquarters of Novell Inc., and Corel took on facilities and staff there when it bought the business applications business from Novell.

Development of the Java version of the WordPerfect word processor was already in Orem, according to Corel spokeswoman Carrie Bendsza. Quattro Pro and Presentations Java work will move there as well, with Java-enabling work on the Paradox database software, Corel Draw and Corel PhotoPaint, and development of a Java-based email client, remaining in Ottawa.

Bendsza said the shift reflects the existing distribution of Corel's operations, with the company's home-grown graphics software business at headquarters and the ex-Novell operations in Utah.

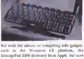
Corel currently has some 50 to 60 Java developers, with about 20 of those based in Ottawa, Bendsza said. She said it is not certain how many positions will move to the U.S., but the people involved will not have to relocate.

Java developers now working on Quattro Pro and Presentations in Ottawa will mostly move to the Draw and PhotoPaint projects, which are just getting under way, while the Orem operation will fill the transferred positions either with new hiring or with existing Windows programmers "who would like to do something in Java," Bendsza said. —*Grant Buckler*

Renamed FinancialCAD upgrades software • SURREY, B.C. (NB)—Glassco Park Inc. has changed its name to FinancialCAD Corp., after its financial tools for Windows. The company also announced the first major upgrade of the FinancialCAD line since its March 1996 release. The FinancialCAD software is designed for working with options, derivatives and the like. FinancialCAD Professional 2.0 for Excel replaces the original FinancialCAD for Excel, adding various new features. FinancialCAD Plus, a new product, adds new exotic options models to those already in FinancialCAD Professional. These are also incorporated in a new release of FinancialCAD Developer, a tool for developing financial systems. FinancialCAD Academic is aimed at business education.

Contact: FinancialCAD
Web site: http://financialcad.com

Psion AIMs itself for handheld PC wars with new Series 5 • Psion PLC, a British firm, has sold millions of its popular Organizer handheld devices and has been the volume leader in handheld computing worldwide in recent years.



But with the advent of competing info gadgets such as the Windows CE platform, the MessagePad 2000 (formerly from Apple, but now from the newly independent Newton company) and the wildly successful Palm Pilot from US Robotics, it seemed as if the Psion was in danger of being eclipsed.

However, Psion has unveiled its much-anticipated Series 5 product, a tiny but powerful handheld computer that the company claims "enables the functionality of desktop applications in a handheld form."

Continued on page 24

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P 166	$1130	or lease $42 /mth
P-200	$1328	or lease $49 /mth
PenII 233(Klmth)	$2108	or lease $78 /mth

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S3 Virge 2mb video & 33 6 PCtel vfx modem
16x cdrom & Wave 32 sound with wavetable
Ms Windows 95 cd ver installed & configured

P 133	$1497	or lease $55 /mth
P-166 (mmx+161)	$1544	or lease $57 /mth
P-200 (mmx+100)	$1741	or lease $64 /mth
PenII-233(Klmth)	$2502	or lease $93./mth
PenII-266(Klmth)	$2722	or lease $101 /mth

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16x cdrom & Wave 32 sound with wavetable
Ms-Windows 95 cd ver installed & configured

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P 166 (mmx+161)	$1900	or lease $70 /mth
P-200 (mmx+100)	$2098	or lease $78 /mth
PenII-233(Klmth)	$2859	or lease $106 /mth
PenII-266(Klmth)	$3078	or lease $114 /mth

ULTINET TOWER PKG #TCP15
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
4 1gb enh ide hdd & 17" Intelliview 28dp mtr
S3 Virge 2mb video & 33 & USR fx modem
16x cdrom & Creative Labs SB16 sound card
Ms-Windows 95 cd ver installed & configured

P 133	$2132	or lease $80 /mth
P 166 (mmx+161)	$2179	or lease $84 /mth
P-200 (mmx+100)	$2378	or lease $87 /mth
PenII-233(Klmth)	$3137	or lease $120./mth
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P-166	$1442	or lease $53 /mth
P 200	$1639	or lease $61 /mth
PenII 233(Klmth)	$2420	or lease $90 /mth

ULTINET TOWER PKG #TCP2
Intel Pentium processor & Triton chipset
32 mb ram & 7ns pipeline cache
2 1gb enh ide hdd & 15" Intelliview 28dp mtr
S3 Virge 2mb video & USRobotic 33 6fx mdm
16x cdrom & Creative Labs SB16 OEM sound
Ms Windows 95 cd ver installed & configured

P 133	$1627	or lease $60 /mth
P 166 (mmx+161)	$1674	or lease $62 /mth
P 200 (mmx+100)	$1871	or lease $69 /mth
PenII-233(Klmth)	$2632	or lease $97 /mth
PenII-266(Klmth)	$2852	or lease $106 /mth

ULTINET TOWER PKG #TCP6
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
SCSI (3 1gb hdd &16X cdrm) Adptc 2940 ctrl
17" Intelliview 28dp mtr & SB16 Oem sound
S3 Virge 2mb video & USR 33 & fx modem
Ms Windows 95 cd ver installed & configured

P 133	$2421	or lease $91 /mth
P 166 (mmx+161)	$2468	or lease $95 /mth
P 200 (mmx+100)	$2665	or lease $98 mth
PenII-233(Klmth)	$3428	or lease $131 /mth
PenII 266(Klmth)	$3646	or lease $139 /mth

ULTINET TOWER PKG #TCP12
Intel Pentium processor & Triton HX chipset
64 mb EDO ram & 512k 7ns pipeline cache
4 1gb enh ide hdd & 17" Intelliview .26dp mtr
S3 Virge 2mb video & USR 33 & fx modem
16x cdrom & Creative Labs SB16 sound card
Win NT Wrkstn V4 0 installed & configured

P 133	$2424	or lease $90./mth
P 166 (mmx+161)	$2471	or lease $91./mth
P-200 (mmx+100)	$2669	or lease $99./mth
PenII-233(Klmth)	$3430	or lease $127 /mth
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S3 Virge 2mb video & 33 6 PCtel vfx modem
Ms-Windows 95 cd ver installed & configured

P 133	$1430	or lease $53 /mth
P-166	$1477	or lease $55 /mth
P 200	$1674	or lease $62 /mth
PenII-233(Klmth)	$2455	or lease $91 /mth

ULTINET TOWER PKG #TCP3
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
3 1gb enh ide hdd & 15" Intelliview 28dp mtr
S3 Virge 2mb video & USR 33 & fx modem
16x cdrom & Creative Labs SB16 OEM sound
Ms-Windows 95 cd ver installed & configured

P-133	$1662	or lease $61 /mth
P 166 (mmx+161)	$1709	or lease $63 /mth
P-200 (mmx+100)	$1906	or lease $71 /mth
PenII-233(Klmth)	$2667	or lease $99 /mth
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2940UW ctrl, 17" Intelliview 28dp mtr & SB16
S3 Virge 2mb video & USR 33 & fx modem
Ms-Windows 95 cd ver installed & configured

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P 166 (mmx+161)	$3362	or lease $124/mth
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19" Mid tower case with 200W
Logitech MouseMan 39 mouse
104 Windows 95 Keyboard
24X EIDE CD-ROM drive
Soundblaster AWE 64 PnP
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USR 33.6 V.34 Voice Fax/Modem Internal
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Intel P200 / Intel P200 MMX	$2803 / $2915
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Pentium Pro - 200Mhz ATX	$3265
Pentium II - 233Mhz ATX	$3570
Pentium II - 266Mhz ATX	$3825

Option 1: Upgrade to Asus TX97-E Motherboard
Quantum ST3.2G UltraATA $70
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Quantum ST3.2G SCSI $299

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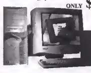

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440CDT P133MMX / 16MB / 1.35GB / 12.1 TFT 10X CD-Rom	$4080
520CDT P166MMX / 32MB / 2GB / 12.1 TFT 10X CD-Rom	$6640
331C1 P133MMX / 32MB / 1.5GB / 10.4 TFT	$4080
740CDT P166MMX / 16MB / 2.0GB / 13.3 TFT / 10X CD-Rom	$7260

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TP365X P133 / 8MB / 1.0GB / 11.3" DSTN Win95	$2290
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MOTHERBOARDS

ASUS

Pentium Pro Motherboard:

Pentium II [illegible] 233-300MHz ATX	$330 (New)
Dual Pentium Pro / Dual Pentium P/I P65UP5 150-200Mhz AT	[illegible]
Pentium Pro P/I-P6NP5 150-200Mhz (Natoma) AT	$310

Pentium Motherboard:

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P/I-P55T2P4S 75-200Mhz PB512 (430HX) 7880 U SCSI	[illegible] (New)
P/I-P55T2P4 75-200Mhz PB512K (430HX) Support MMX	$158
VX97 75-200Mhz PB256K (430VX) No Dimm	$158
TX Series (New [illegible] ATX)	
TX97 / TX97-X 75-200Mhz PB512K (430TX) Dimm Only	$209 / 235
TX97-E / TX97-EX 75-200Mhz PB512 (430TX)	$229 / 236

Intel

Pentium Pro PD440 150-200Mhz 440FX ATX	$320
Pentium LT430TX 75-233Mhz Triton II 430TX	$300

TYAN

Pentium II: Titan S1800 AT	$379
Dual Pentium Pro Titan-Pro (S1668) 150-200Mhz	$495
Dual Pentium Tomcat II S1563 75-200Mhz PB256K	$315
Pentium Titan S1470 / S1472 ATX 75-200Mhz 430TX	$109
Pentium Titan Turbo S1571 / 75-200Mhz 430TX ATX	$259 (New)
Pentium: [illegible] 75-200Mhz PB512K (430VX) 30PAK	$119

CPU & MEMORY

Intel

Pentium II Klamath 233 · 266Mhz	$679 / 1100
Pentium Pro 180 / 200Mhz	$615 / 899
Pentium P233Mhz (MMX)	$630
Pentium P166 / P200 Mhz (MMX)	[illegible]
Pentium P166 / P200 Mhz	$246 / 395
Pentium P133 / P150 Mhz	$179 / 195
Pentium P120 Mhz	146

CYRIX / IBM

6x86-P166+ (133Mhz)	$125
6x86-P200+	$195

AMD

K5-133Mhz / K5-166Mhz	$112 / 155
K6 [illegible] 166Mhz / K6 [illegible] 200Mhz	$309 / 418
K6 [illegible] 233Mhz	Call

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SDRAM 16MB / 32MB / 64MB 168 pin 10ns	$Call

MASS STORAGE

Seagate

EIDE

ST1720A 1.7GB / ST32122A 2.1GB	$250 / 273
ST33210A 3.2GB / ST36400A 6.4GB	$340 / [illegible]

SCSI

ST32155N 2.1GB / ST32155WN 2.1GB 5400 9ms	$500 / 675
ST32272W 2.3GB / ST32272WN 2.3GB 7200 9ms	$680 / 773
ST34573W 4.5GB / ST34572WN 4.5GB 7200 9ms	$1080 / 1090
ST34501W 4.5GB / ST34501WN 4.5GB 10,000 7.5ms	$1180 / 1240
ST19101W 9.0GB / ST19101WN 9.0GB 10,000 7.5ms	$2000 / 2122

Quantum

EIDE

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Fireball ST 2.1GB / 3.2GB Ultra ATA	$279 / 300
Fireball ST 4.3GB / 6.4GB Ultra ATA	$Call / 610
Fireball SE 4.3G / [illegible] Ultra [illegible]	Call

SCSI

Fireball TM 2.1G / 3.2G Ultra SCSI 3	$365 / 399
Fireball ST 2.1G / 3.2G Ultra SCSI 3	$395 / 409
Fireball ST 4.3G / 6.4G Ultra SCSI 3	$570 / 780
Atlas 2.0GB SCSI / 2.0GB Ultra 7200 8ms	$440 / 510
Atlas 4.3GB SCSI / 4.3GB Atlas 7200 8ms	$800 / 880

IBM

IBM (OEM) DJAA-31700 2.1GB	$280
IBM (OEM) 2.1GB U Wide SCSI 8ms	$690

IOMEGA

W.D. AC21600 1.2G / AC21600 1.6G	$250 / 258
W.D. AC31600 1.6G / AC32500 2.5G	$270 / 319
W.D. AC33100 3.1G / AC34000 4.0G	$300 / 390
W.D. E2 [illegible] 1.7G U SCSI 8ms 7200rpm	$500
W.D. E2 [illegible] 2.1G UW SCSI 8ms 7200rpm	$600
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Zip Disks 100MB Single Cartridge / 10-Pack	$19 / 179
Jaz Drive [illegible] Ext (12ms 6.6M/sec)	$415 / 550
Jaz Disks 1GB Single Cartridge / 5 Pack	$130 / 600

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Yamaha CDE400 (R)/RW CD-Recorder Int./Ext.	$630 / 690

CREATIVE

Creative Master PC-DVD-Rom Drive	$500

HEWLETT PACKARD

SureStore CD-Writer [illegible] 4R/2W Int. (Incld Software)	$600
SureStore CD-Writer [illegible] 4R/2W SCSI Ext. (Incld Software)	$700
Ricoh CDRE200/SD-[illegible] 2X Re-Writable CD w/Software, 2 media	$480
Memorex / Sony CD-Writer Media Single	10/11

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T4000G 4-8GB Travan Int. (QIC3095)	$325
TAPE 3M TR-3 1.6GB / TR-4 4.8GB	$40 / 60

Seagate

TST800RR 4-8GB (QIC3095) IDE/SCSI Int. w/tape	$400
TST800RR 4-8GB (QIC3095) SCSI Ext. w/tape	$500
STD2400RN 2-4GB DAT Int. [illegible] DAT Ext.	$846 / 1000
STD8000N 4-8GB DAT Int. / [illegible] DAT Ext.	$1235 / $1440

IOMEGA

Ditto 2GB Tape Drive Int. / Ext. (10MB/Min) Plus $60 Rebate	$215 / 295
Ditto 3200 3.2GB Int. Ext. (Plus $30 Rebate)	$279 / 300

VIDEO CARDS

ATI

Videoboost M64 1MB Exp. 2MB [illegible] 2MB DRAM	$75 / 85
3D XPression + 2MB PC2TV w/TV output / 4MB	$158 / $179
3D XPression + 2MB Ext. 4MB w/o TV output	$148
3D Pro Turbo 4MB SGRAM / 8MB	$215 / 319
All in Wonder [illegible] / [illegible] w/TV Tuner	$[illegible] / Call

DIAMOND

Stealth64 3D 2240 4MB Exp. 4MB (OEM)	$114
Stealth64 3D 3400XL 4MB VRAM (OEM)	$180
Monster 3D 4MB EDO [illegible] (Add-on Card) (Retail)	$Call

MATROX

Mystique PCI 3D 4MB OEM / 4MB OEM	$126 / 158
Mystique PCI 3D 2MB Retail / 4MB Retail	$162 / 176
Mystique 220 2MB [illegible] / 4MB OEM	$175 / 210
Millennium MIL/2B OEM / MB / 3B Retail 2MB WRAM	$180 / 220
Millennium MIL 4B OEM / MIL / 4L Retail 4MB WRAM	$234 / 279
Millennium II 4MB Retail 8MB Retail	$300 / 380
Matrox Rainbow Runner Studio	$300
Matrox Rainbow Runner TV	$185

STB

Lightspeed 128 4MB / Velocity 3D 4MB	$130 / $186

CIRRUS LOGIC

PCI-5480 MPEG 64bit 1MB Exp. 2MB	$46

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MOTOROLA

BitSurfr Pro ISDN Terminal Adapter Ext. 1 port / 2 port	$300 / 390

MEGAHERTZ

PCMCIA Ethernet Lan Adapter 10Base-T or 10 Base-2	$179
PCMCIA XJ1336 33.6 X-Jack Modem	$250
PCMCIA XJ2288 28.8 Modem + 10BaseT Combo	$419

DigiCom

DigiCom 33.6 Voice, Fax Modem PnP w/ headphone	$99

DIAMOND

Supra [illegible] 3000 Modem Int.	$300

U.S. Robotics

Sportster Voice 33.6 V.34 w/FullDuplex Int (OEM)	$300
Sportster [illegible] X2 FaxModem (OEM) Int. / Ext. (Retail)	$189 / 265
Sportster 56K X2 FaxModem Voice (OEM) Int. / Ext. (Retail)	$215 / 289
Bigpicture Video Kit (Camera, Modem, Capture)	$524
Bigpicture Video Modem & Capture Board	$329
3Com 3C482 Compact [illegible] ISDN Modem Ext.	$400

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Laser Jet HL 760DX 1200dpi 6ppm (+$50 Rebate)	$600
Laser Jet HL 1260 1200dpi 10ppm (Promotion)	$786
Laser Jet HL 1660 1200dpi 17ppm (Promotion)	$1080
MultiFunction MFC [illegible] (Promotion)	$1300
Brother Laser Toner TN [illegible]	$[illegible]

Canon

BubbleJet BJC240 Color (Win95) / BJC 4200 Color	$[illegible] / 280
BubbleJet BJC-4550 Color (11"x17")	$[illegible]

EPSON

BubbleJet Stylus 300 Color 720 dpi	$[illegible]
BubbleJet Stylus 800 [illegible] Color 1440 dpi	$[illegible]

HEWLETT PACKARD

DeskJet 694C	$[illegible]
LaserJet 5L 600dpi 4ppm 1MB	$[illegible]
LaserJet 6P 600dpi 8ppm 4MB	$[illegible]
LaserJet 6MP 600dpi 8ppm 4MB	$1 [illegible]
LaserJet 5 600dpi 12ppm 4MB	$1 754
LaserJet 5M 600dpi 12ppm 4MB w/print[illegible]	$2,076
LaserJet 5M 600dpi 12ppm 6MB w/PS	$2106

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MicroScan 5P 17" .28mm N.I. L.R.	$Call

SONY

Multiscan 100GX 15" / 100SF 15" .25mm	$525 / 548
Multiscan CPD-200SX 17" / CPD-200SF 17" .26mm	$[illegible] / 1023
Multiscan CPD-[illegible] 20" [illegible] / 1280 [illegible]	$[illegible]

MITSUBISHI ELECTRONICS

Diamond Scan 15HX 15" .28mm	$[illegible]
Diamond Pro 17" 87TXM .25mm	$1 145
Diamond Pro 21" 91TXM .28mm	$2300

VIEWSONIC

Optiquest V775 17" 1Color 2.8" / V77 / 17 17" 1280x1024	$636 / $715
ViewSonic G771 17" .27mm / 17PS 17" .26mm	$768 / [illegible]
ViewSonic G773 17" .26mm / P775 17" .25mm	$[illegible] / 1087
ViewSonic [illegible] 20" .30mm / P810 21" .30mm	$1[illegible] / 1450

EIZO (PC Magazine Editors' Choice)

FlexScan/Windows 17" FX-C7S 1600x1200 .25mm	$[illegible]

NEC

NEC C500 15" / M500 15" .25mm (New)	$585 / 575
NEC M700 17" .28mm	$[illegible]
NEC P[illegible] 17" .25mm	$1270

[illegible]

SPEAKER SYSTEM

Altec Lansing ACS95 PowerCube Speaker System w/Dolby 3-Sound	$[illegible]
Altec Lansing ACS45 PowerCube System w/Subwoofer	$148
GMT5000 Speaker System w/ Subwoofer	$[illegible]
GMT3000 3Way [illegible] 80W Speakers	$79
GMT [illegible] 3D Stereo Full Range [illegible]	$49
Multimedia JT1600 100W Speakers	$[illegible]

CREATIVE

SoundBlaster 16 PnP w/o IDE	$[illegible]
SoundBlaster 32 w/[illegible] PnP (OEM)	$129
SoundBlaster 64 PnP (OEM)	$136
SoundBlaster AWE64 Value (Retail) / Gold (Retail)	$148 / 285

CD ROM

Creative Lab [illegible] CD-ROM [illegible]	$[illegible]
Panasonic CR-[illegible] CAV 24X Int. IDE	$1[illegible]
Toshiba XM-[illegible] 12X EIDE Int.	$[illegible]
Toshiba [illegible] 24X IDE Int.	$1[illegible]
Hitachi CDR 8130 16X CD-ROM	$158
Toshiba XM7501B 12X CD-ROM SCSI Int.	$1[illegible]
Pioneer DR-[illegible] SCSI 12X Int.	$1[illegible]
Sony CDU415 SCSI	$179

NETWORKING

CNet

CNET [illegible] + 16 [illegible] jumperless	$[illegible]
CNET [illegible] PCI Ethernet Combo	$[illegible]
CNET CN[illegible]TPC 8 Port Hub	$175
CNET CN[illegible]TPC 16 Port Hub	$310
CNET CN[illegible]TPC [illegible] Port Hub	$280

3Com

Etherlink 10BB 3C509B Coax or RJ45	$128 / 135
Etherlink 10BB 3C509B Combo Single	$146
Etherlink PCI 3C900 TP (RJ45) Single	$1[illegible]
Etherlink PCI 3C900 10BT & 10B2 Combo Single	$135
Fast Etherlink PCI 3C905TX 10/100BT	$1[illegible]
SuperStack II 16MB 24 Port Hub TP	$1150
SuperStack II [illegible] 12 Port Hub TX	$1500

Intel

EtherExpress Pro 10+ ISA Coax or 10BT	$[illegible]
EtherExpress Pro 10 + PCI 10BT	$145
EtherExpress Pro PCI 10/100 PCI 10BT Combo	$[illegible] / 156
EtherExpress Pro PCI 10/100 PCI 5 Pack 100T	$[illegible]

CONTROLLERS

adaptec

SCSI ISA Adaptec 1505A OEM	$[illegible]
SCSI ISA Adapter 1522A OEM	$[illegible]
SCSI PCI Adaptec 2940U (OEM)	$265
SCSI PCI Adapter 2940 UW (OEM)	$[illegible]
SCSI PCI Adaptec 2940 UW Kit OEM	$330
SCSI SlimSCSI 16bit PCMCIA to Fast SCSI-2	$230

DIAMOND

Diamond FirePort [illegible] Fast SCSI [illegible]	$[illegible]
Diamond FirePort [illegible] Ultra SCSI	$[illegible]

ASUS PCI SC200 (Fast SCSI II) for Asus motherboard only	$117
ASUS PCI SC875 (Ultra Wide) for Asus motherboard only	$[illegible]

SOFTWARE

COREL

Corel Draw V7.0 for Windows 95 CD (Retail)	$440
Corel Office Pro / Up Ver.1	$[illegible] / 250
McAfee Virus Scan for Win95	$75
Norton Anti-Virus for Win95	$1[illegible]
Norton Utilities for Win95	$172
Delrina WinFax Pro Ver.7.0 Full	$148

Microsoft

MS NT Server Ver.4.0 [illegible] (OEM) / Up	$1[illegible] / [illegible]
MS NT Workstation Ver.4.0 (OEM) / Up	$[illegible] / $185
MS Home Essential (MS Word, Book Shelf, Money & Works)	$136
MS Office 97 STD / Up New	$540 / 300
MS Office 97 PRO / Up New	$775 / [illegible]
MS Office 97 PRO (OEM) (Bound only)	$420
MS Windows95 2-CD (Bound only)	$105
MS Publisher 97	$[illegible]

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WHAT'S NEW

Continued from page 20

The Series 5 is a sleek, attractively designed device based on the ARM RISC microprocessor, with a "VGA-width" backlit touch-sensitive screen, a remarkably comfortable touch-typing keyboard, the 32-bit EPOC32 operating system and applications set, and advanced communications and file-transfer capabilities. The Series 5 comes with 6 MB of ROM and either 4 or 8 MB of RAM. The suite of built-in software includes full-featured time manager, contact database, voice recorder, drawing program, word processor, spreadsheet, database, printing and other programs and utilities. Options (requiring an external modem or PC Card modem) include PsiMail email program, and PsiFax, and a soon to be released Web browser.

According to David Potter, chairman of Psion PLC, "The Series 5 creates a new generation of mobile computers for professional users both as individuals and within the corporate IS [information systems] environment. The look and feel of the hardware is very much like a laptop computer and is light years ahead of the competition."

Initial orders for the Series 5 have far out stripped current production, according to Psion's Canadian representative, but small quantities are available in Canada, and high volume production is expected to make the product generally available by the end of the summer.—*IE*

Contact: Psion Tel: 908-371-9310.
Web site: http://www.psion.com or

Canadian training firms merge • TORONTO (NB)—CDI Career Development Institute Ltd. and the Institute for Computer Studies, both based in Toronto, have agreed to merge. The Institute for Computer Studies will become a division of CDI.

Both companies specialise in computer training. CDI was formerly the education and training division of Control Data Corp., and the Institute for Computer Studies was originally the Honeywell Institute. The combined organization expects to have about 800 employees and $100 million in revenue by 1999.

Contact: **CDI** Web site: http://www.cdicollege.com
Institute for Computer Studies
Web site: http://www.computerstudies.ca

Talk to your CE HPC with ART • Good quality speech recognition is just now becoming a reality on the most powerful models of desktop PCs, so it came as a bit of a surprise when, on June 17 at PC Expo, a California based company announced three new speech recognition utilities for the handheld Windows CE platform.

Advanced Recognition Technologies (ART) has developed smARTcontact, smARTmemo and smARTcommand for CE, "the first software products that enable speech recognition on the popular Handheld PC [HPC] platform." Given that the existing input devices for HPC (teensy keyboard and a stylus) are not all that convenient, the

Continued on page 26

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VISA

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Asus MMX Pentium MB w/512K cache VX97/TX97	$145/229
Asus Single NP6/UP5 (Dual) Pentium Pro PCI board	$325/716
Intel Pentium 133/150/166/200MHz	$208/235/318/389
Intel Pentium Pro CPUs 180/200MHz	$620/780
Intel Pentium MMX 166/200	$429/736
AMD K5-133/K5-166/K6-166/K6-200MHz	$129/175/385/565
72 Pin EDO RAM 4/8/16/32/64MB	$16/36/67/138/520
168pin SDRAM 16/32/64MB	$118/225/790

MONITOR AND VIDEO CARD

ATI
Matrox
in
Stock

Daytek 1436/1531/1731/1704/2102	$325/365/825/935/2075
ViewSonic 15GS/Q71/V775	$395/725/928
ADI 15"4V/17"5V	$446/785
Sony SVGA monitor 100SX/100SF/200SX/200SF	$555/599/949/1148
ATI Video Boost PCI 2MB/3D Xpression w/2MB	$75/135
ATI 3D Xpression+ PC2TV 2MB/4MB	$150/185
ATI 3D Pro Turbo PC2TV, 4MB/8MB	$225/283
Matrox 3D Millennium w/2MB/4MB	$209/275
Matrox Inspector version 2.1	$1495

TAPE, ZIP, JAZ, HARD DRIVE, CONTROLLER

Seagate Fast-ATA 1.2/1.7/2.1/2.5/3.2/4GB	$255/266/245/325/355/686
Seagate F-SCSI2 1.08/2.1/4.3GB	$375/725/1125
Seagate UltraWide SCSI3 2.1/4.3GB(7200RPM)	$806/1235
Western Digital 1.6/2.1/2.1/4.0GB	[illegible]
Adaptec SCSI Controllers 2940U/2940UW/3940UW kit	$280/336/419
HP Colorado T3000/T4000S internal	[illegible]
IOMega ZIP 100MB SCSI/Internal/Parallel Drive same price	$MB
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Continued from page 24

notion of a voice input alternative for HPCs equipped with a built-in microphone (such as the Philips Velo) has a certain appeal.

smARTcommand is a program launching and navigation utility that allows users to define simple voice commands. The utility is easier to customize with built-in prompts and option browsers included with the utility. The smARTcommand software incorporates sophisticated noise filtering and recognition technology.

Richard McCaskill, executive vice-president and general manager of ART claims, "The engine's patented built-in noise immunity ensures high recognition accuracy regardless of the types of background noise present. .. In addition, the programs use less than 100KB of memory on the HPCs. This engine makes smARTcommand ideal speech recognition for the diverse mobile environments of an HPC."

ART's smARTmemo utility rounds out the company's CE software offerings, allowing users to dictate simple memos into their HPC.—*JE*

Contact: Advanced Recognition Technologies,
Web site: http://artcomp.com/

Panasonic color lasers join race for high-quality printer market • The high quality color segment of the printer market has been the scene of numerous new product introductions by companies such as Xerox and Lexmark, and now joining the competition is Panasonic, with its new KX-P8475 Digital PostScript color laser printer and Digital Color Imaging System.

The KX-P8475 color laser model features up to 1,200x1,200 dpi resolution in color and mono modes, 14 page per minute (ppm) monochrome output and 5 ppm color output, with near photo-quality color imaging, and fine laser printer quality text. The Digital Color Imaging System is based on the KX-PS8000 family of laser printers, beginning with the entry-level KX PS8000E model, a 600x600 dpi printer, and including the 1,200x1,200 dpi KX PS800D with 32 MB of RAM and a 250-sheet paper tray and the KX PS8000N with 48 MB of RAM and a 750-sheet paper capacity.

Panasonic has implemented many new features to reduce the total cost of ownership of its color lasers in line with similar initiatives from Xerox and Lexmark, including high-capacity toner cartridges (12,000 images for black, 10,000 images for cyan, magenta and yellow toners), a one-year warranty (including replacement units during service), and optional on-site service contracts. Panasonic estimates the cost per page for consumables (toner and paper) at about four cents for black, and 13 cents for color (based on five percent coverage) —*JE*

Contact: Panasonic, Tel: 800-742-8086, ext. COLOR.
Web site: http://www.panasonic.com/alve

Dolch luggable PCs: Tough enough for an action hero • Computer nerds, according to the popular view tend to limit their macho activities to building up the muscles on their trigger finger while playing shoot 'em up games such as Duke Nukem 3D or Quake. However, in this world, there are real manly men (and women) who need computers that are as rugged as they are, and able to survive on a factory floor, a remote mine site, or even on a battlefield. Operating under a simple philosophy of "rugged portables with lots of slots," California-based Dolch Computer Systems makes big, almost unbreakable PCs that even Rambo wouldn't feel like a sissy using.

In recent weeks, Dolch has rolled out a full-featured 266 MHz Pentium II MMX portable, a luggable enterprise-class NT Server, a 1 GB per second fibre optic network, and a high impact, ruggedized 14-inch flat screen monitor.

Dolch's portable computers don't even try to fit into a notebook form—the double-layer metal protective chassis, capacity for up to 9 GB of hard drive plus additional cartridge drives, and fistful of PCI and ISA slots all take precedence over daintiness, and demand a shape that is midway between a desktop and a laptop PC. Dolch PCs aren't cheap, starting at about US$10,000 and quickly going up from there —*JE*

Contact: Dolch. Tel: 510-661-2220.
Web site: http://www.dolch.com

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Gadgets and gurus:

a tale of two trade shows

BY JEFF EVANS

Two of North America's major computer trade shows were held in the United States within a few weeks of each other in June, showcasing the latest in computer technology and also giving vivid snapshots of the strategies of the industry's major companies

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Last spring in Atlanta

The Comdex/Spring 97 in Atlanta was the last Comdex to be held in that city as future Comdex/Spring shows will move to Chicago beginning with Comdex/Spring 98 (April 20-23)

The 1996 Comdex/Spring had been cancelled due to the Olympic games that were held in Atlanta that year This year's show, though it attracted over 100 000 attendees (twice the attendance of any Canadian computer show and half that of the Fall Comdex in Las Vegas) was missing some of the major names in the PC industry, including Dell and Compaq. Nonetheless, Comdex/Spring attracted some of the biggest names in the computer industry, and featured some notable new products.

The Ted 'n Larry Show

Keynote addresses were made by Lotus chief executive officer Jeff Papows, Microsoft's Bill Gates and the unlikely team of CNN founder Ted Turner (not known to be a computer buff) and Oracle's Larry Ellison (recently featured in a *Vanity Fair* magazine profile as a hyper macho $6-billion "babe magnet" who wants to dethrone Gates).

Papows charged out of the gate before a vast audience presenting himself as a "Pure Java" evangelist, insisting that a cross-platform, non-proprietary, open computing environment (i.e , not Microsoft Windows) is "the universal environment for an applications renaissance. If we screw this [Java] up as with Unix, we've lost our last chance."

Papows praised the concept of "write once run anywhere," as embodied by Java. He also claimed that we are on the verge of a breakthrough in business-to-business electronic commerce, which he predicted will amount to a $150-billion market in North America within two years By comparison, he said, general Internet online commerce will amount to a more modest $20 billion

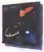
The next day Gates engaged in an onstage dialogue with Gary Beach of *Computerworld*, where he answered questions and made his own predictions He pooh-poohed the dream of universal compatibility based on the Java language and the Network Computer (NC) platform saying, "They call it NC because it stands for Not Compatible.'" Gates characterized the growth in the importance of networked business communications as corporations' "digital nervous system " Gates confessed that even Microsoft has had to push to go digital in its own operations He asked to see all the paper forms Microsoft still used in its business, as an indicator of how far along it had come to the truly paperless office To his surprise, he found that the company still had over 1,000 different paper forms in use. Gates has ordered the paper to be drastically reduced in favor of email and electronic form alternatives. "We can help by showing the way," he said.

A [illegible] demos IBM's Net PC at PC Expo in New York

In a truly dramatic finale, the third day of Comdex/Spring started with a bang as Turner and Ellison unveiled a new customizable online CNN news service, powered by Oracle database technology Turner gave an engaging "aw shucks" description of his own bewilderment at the information overload he has helped spawn

Then Ellison went to demonstrate the new CNN service, and discovered to his horror that he'd forgotten his glasses He fumbled around on stage peering myopically at the computer screen, crashed his system—"a Windows bug," he muttered—until after long minutes, his glasses were carried to him and he completed the demo with a flourish, doing a "high five" with Turner. Turner wondered aloud how much value their two companies had lost because of the early problems in the demo (Moral Chief executive officers should not give live Internet demonstrations at trade shows)

Between them, the keynote speakers set the terms of the struggle that will dominate computing over the next few years, between the "open" Java/Network Computer world and Gates Windows empire.


Mitsubishi's 40-inch plasma flat screen monitors including this model that can be hung on the wall like a picture was one of the new product highlights at Comdex in Atlanta.

Comdex/Spring in Atlanta

COMDEX IN ATLANTA MOVES TO CHICAGO PC EXPO IN NY SHOWS NEW LIFE

In terms of new products, the Atlanta show was remarkably rich Among the highlights were huge 40-inch plasma flat screen monitors from Mitsubishi (including a model that can be hung on the wall like a picture), a recordable DVD-RAM drive from Hitachi, and some very impressive new graphics cards, for consumers and business PC users, from Canada's ATI

In particular, ATI seems to have DVD playback down pat, a feature that may win them a significant market in the next couple of years. Its new graphics cards incorporate MPEG2 digital playback with motion correction, a feature that makes for marvelously smooth, jitter-free video.

Continued on page 38

CNN's Ted Tu[illegible] [illegible] Ellison hit a [illegible] the new Oracle database powered online CNN Custom News service at Comdex in Atlanta. Moments later the two chief executive officers are successful.

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AMD K6-233 MMX	749

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Most monitors are on display

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Gadgets and gurus

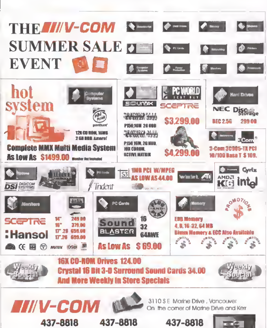
Continued from page 28

Other Canadian vendors had high profiles, including Markham-based Batra, with its WebSurfer TV set top Internet box, and the large format Smart Board from Calgary's Smart Technologies Toronto's Devlin Multimedia was actively engaged in meetings to promote its online D Room collaborative project management system. Ottawa's Corel Corp was on hand to demonstrate the latest version of its WordPerfect suite, the latest beta of the Corel Office Suite for Java and CorelDRAW

Adobe was on hand to show its latest versions of industry standard graphics applications, such as Illustrator Photoshop and Premier. Two of Adobe's competitors in the graphics software market, Fractal Creations and MetaTools, celebrated their merger into a new entity called MetaCorp with an excellent party at the Atlanta Hard Rock Cafe

Dolch, perhaps the most experienced maker of "ruggedized" portable computers, was showing a complete line of portable enterprise servers, high-end multimedia luggables a 1 GB per second fibre optic network, and tough flat panel displays

All in all Comdex bowed out of Atlanta with a final show that was in every respect a class act. The Softbank Comdex organizers ran a thoroughly professional event right until the lights went down at the end of the last day With a long-term lease on exhibition space in Chicago, Comdex will still continue in the eastern half of the U.S.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PC Expo: Apple goes to the Big Apple

The PC Expo show in New York City, which ran from June 14-19 represented a show that seems to be reviving after years of decline Housed in the impressively cavernous Jacob Javits Centre, this year's PC Expo was characterized by a strong turnout from the major U.S PC makers

Compaq and Dell announced new Net PC "low-maintenance" Windows PCs designed to lower the cost of ownership in a networked business computing environment. Long-time graphics card leader Number Nine Corp unveiled its awesomely powerful Revolution graphics card, a 2D and 3D powerhouse that can run the most demanding consumer or professional software, ranging from Quake to AutoCAD

Iomega made a buzz with its Buz video-digitizing system, which combines a camera, video capture card, Canada's Video Wave editing and effects software from MGI and Iomega cartridge drives for a fast, simple, and powerful desktop video system at a low price

For higher end digital video production, Play Corp was on hand with its "real soon now" beta version of the Trinity broadcast quality digital video production system. Trinity, if it comes to market soon and in good working order could do for the mainstream PC market what the legendary Video Toaster did for the old Commodore Amiga. make the PC a standard platform for high quality video editing, effects and animation

LG Electronics showed its new Phenom handheld CE device, and Psion rolled out its new Series 5 handheld computer, featuring a host of enhancements aimed at competing with the runaway success of US Robotics' Palm Pilot

Apple had a major display, which included a Mac OS partners pavilion with dozens of third-party developers showing Mac-based business, Internet and graphics products. The Newton division of Apple, recently spun off as an independent entity had a large booth far away from the main Apple site, where the emphasis was also on third-party business solutions.

...And on to Toronto

By the time you read this Toronto will have had its own kick at the Comdex can, as Comdex Canada 97 is held at the Metro Toronto Convention Centre, July 9-11 A huge array of Canadian computer vendors, both multinational giants and local clone makers, will be in attendance. One of the few notable exceptions will be IBM Canada, which has for reasons best known to itself decided not to exhibit

Among the confirmed exhibitors are many Canadian technology leaders, including the hugely successful Canadian notebook PC maker Eurocom And as always towering over all this summer's shows is the inescapable presence of Microsoft, with its own substantial exhibits, vast MS partners pavilions, and the pervasive presence of Windows 95 and Windows NT in virtually every other exhibitor's space Among the keynote speakers will be Canada's Frank Clegg, who was kicked upstairs from the head of Microsoft Canada to head up the central region of North America, which has been stretched to include Canada. ☐

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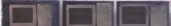

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NEWS

Apple lays out dual OS development strategy

BY JEFF EVANS

Apple Computer, still struggling to renew its momentum after a year and a half of dismal news, has announced the latest progress in its two-track operating system strategy. At a seminar in Toronto in mid-June, Apple Canada Inc. demonstrated its next significant upgrade to the Apple Macintosh operating system, Mac OS 8, and also described its plans for the release of the Rhapsody operating system, which it hopes to bring to market sometime in 1998.

Mac OS 8 was shown in a very late beta version, which Apple claimed to be virtually identical to the final release scheduled to ship in July 1997. Among the features demonstrated were multi-threaded operations, a kind of multi-tasking, which includes the ability of users to assign priorities to particular tasks that can command more of system resources than others.

Mac OS 8 will also offer a more responsive user interface, with contextual menus that can be connected to a particular icon. The Mac OS 8 interface will offer an "entry level" default style, and numerous options for customizing the screen display, with windows that open and close in layers, options for reducing screen clutter, and for moving through several menu levels with a single mouse command.

Apple claims third-party support for Mac OS 8 is strong. According to David Krathwohl, vice-president of developer relations, "Developer response to the Mac OS 8 beta release has been tremendous. The beta release demonstrates Apple's ability to deliver important software on schedule, something that our developers require to be successful."

Andrew Holowka, a director of the Massachusetts Institute of Technology, claimed "Mac OS 8 is by far the most stable, fast, efficient, and effective OS release since 1984... Perhaps the most important and significant aspect of Mac OS 8 is that it lays an efficient and stable groundwork for the next chapter in Apple's history: the introduction of Rhapsody in 1998."

The impending release of Mac OS 8 comes soon after the release of Mac OS 7.6.1, and Apple claims that this is evidence of its dual OS strategy: the continual development of the current generation of OS while at the same time, making rapid progress in developing Rhapsody. Apple expects that the first release of a development version of Rhapsody will be made to third party developers in mid to late 1997, to allow for the timely development of applications optimized to run under Rhapsody. The customer release of Rhapsody is scheduled for sometime in 1998. ❑

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Microsoft's cable TV gambit

BY GEOF WHEELWRIGHT

When Microsoft announced in June that it was to make a huge US$1 billion investment in U.S. cable TV giant Comcast Corp. the casual observer may have wondered what Microsoft chief executive officer Bill Gates was thinking. On closer inspection, it appears the reason for the investment has a lot more to do with Microsoft finding ways to get its products to new markets before the competition than it does with Microsoft wanting to get into the cable TV business.

Anyone who has looked carefully at Gates' speeches over the past number of years will know he has long supported the idea of cable television companies providing high-speed Internet access via cable modems. He has often publicly speculated as to where the money would come from to help the cable industry upgrade its cabling infrastructure enough to support this high-speed access. Now we know at least in the case of Comcast.

By investing in Comcast, Gates buys himself a way of helping to speed up access, while ensuring Microsoft's content can be "front and centre" when that high-speed access becomes a reality

"Our vision for connecting the world of PCs and TVs has long included advanced broadband capabilities to deliver video data and interactivity to the home" explained Gates when the investment announcement was made on June 9 "Comcast's integrated approach to cable distribution programming and telecommunications complements that vision of linking PCs and TVs Today's announcement will enhance the integration of broadband pipes and content to expand the services offered to consumers."

When you look at who Comcast Corporation really is you can see further reasons for the investment. Comcast, ranked as the fourth largest cable TV company in the U.S. is principally engaged in the development, management and operation of wired telecommunications This includes cable television and telephone services, wireless telecommunications including cellular, personal communications services and direct-to-home satellite television, and content through principal ownership of the "home shopping" network QVC In addition, the company also holds a stake in the @Home Internet content network which recently signed a deal to offer its users access to the content of MSN, The Microsoft Network, for US$6 95 per month

Finally the whole deal could work very well with Microsoft's acquisition early this year of WebTV, the company pioneering much of the "Internet via TV" technology and content that is currently being touted so heavily in the U.S Comcast's 10 million customers would make a huge potential audience for WebTV However, Microsoft is not likely to pursue this too heavily until the WebTV deal clears the regulatory hurdles in the U.S It is current being examined by the U.S Department of Justice. ❑

PBS Life On the Internet • (NB)—This Web site accompanies the *Finding Things* series on PBS now in its second season. You can find a beginners guide top the Internet, stories and links, a timeline of the Internet, trivia and a Net knowledge quiz, plus more The stories and links page includes details of the features in the TV series plus links to the Web sites used to prepare the features.

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2 x 56K = CONFUSION

By Geof Wheelwright

Our modem when surfing the World Wide Web we are still making do with modems that communicate at 28.8Kbps (kilobits per second), or if we're lucky, at 33.6Kbps.

Yet just as sure as the sun will rise tomorrow we can also rely on the fact that modem makers will find ways of making their products faster. One of the latest ways of doing this has been the 56Kbps modem implemented in two different ways by US Robotics (USR) and Rockwell Semiconductor Systems (a leading maker of chipsets for popular modems).

Modems that use either USR's X2 implementation or the Rockwell/Lucent K56flex version of 56Kbps promise to offer modem communication speeds of up to twice the current 28.8Kbps average—as long as you are communicating with a modem at the other end that can exploit your 56Kbps connection. If you are primarily using the modem for Internet access, then the only major concern has to be that your Internet service provider (ISP) can offer connections at 56Kbps using the type of modem you select.

The reason there are two schemes for providing this kind of high-speed link is simple: international standards bodies have not yet ruled on standards at this speed. The ITU-T (International Telecommunication Union-Telecommunication Standardization Sector) develops communications standards worldwide. Study Group 16 of the ITU-T is developing the worldwide standard for pulse code modulation (PCM) modems.

PCM codes, used in the digital portion of the phone network, are at the heart of this new generation of 56Kbps modems. A stable draft PCM modem recommendation is expected this fall; a final recommendation could be completed by January 1998. The "V.PCM" modem standard could then become official in 1998.

The rub is that neither the K56flex nor X2 camps can guarantee that their respective specifications (and the products you buy today) will be completely compatible with the final ITU standard. However they have gone to lengths to assure today's customers that they aren't buying dead-end technologies.

"Things are moving quickly in the U.S., but most think it won't be until late 1997 or early 1998 until an ITU standard is finalized," explained Rockwell in a recent statement. "By then, Rockwell believes that the company will have deployed several million units in the field. Future Rockwell modems that support an eventual ITU standard will all be able to communicate with the millions of original K56flex modems that are now rolling out into

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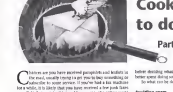

Cooking spam: what to do about junk email

Part 1: understanding and avoiding spam

BY KEITH SCHENGILI-ROBERTS

Chances are you have received pamphlets and leaflets in the mail, usually trying to get you to buy something or subscribe to some service. If you've had a fax machine for a while, it is likely that you have received a few junk faxes as well. Unfortunately, this trend has come to the online world as well, so increasingly, if you have an email address, you can expect your fair share of junk email, better known as "spam."

Spam is unsolicited email sent to a large number of people. Many involve get-rich-quick schemes of highly dubious legality, or access to sexually explicit Web sites or some other product or service.

It is thought that the term "spamming" came from the classic *Monty Python* sketch where Vikings invade a small restaurant and endlessly sing the praises of the establishment's main menu item: Spam. Much like the song they sing, spam email is repetitive, it's substance questionable and it seems to go on and on.

Spam email has become almost universally loathed by the online community, since at best it is a waste of Internet resources, and often imposes a cost on recipients of the messages. This cost can be the waste of hard disk spam for storing these emails, or it can be the more direct cost on those people who have to pay for every email they receive. At the very least it is annoying, and most people have to read the messages first before deciding what to do with them—detracting from time better spent doing something else.

So what can be done to stop getting spammed?

Avoiding spam

Your best bet is to make it harder for potential spammers to get your email address. To do this, you have to know a little bit about how spammers get your email address in the first place.

If all you do is send email to individuals, and your email address is not listed anywhere, you may be one of the lucky few who does not get spam. However, if you tend to make posts to any one of the thousands of Usenet newsgroups, or have a Web page, chances are you will get your fair share of spam.

Spammers use a system similar to that used by Web search engines to grab email addresses from the Internet. Search engines like Yahoo, Alta Vista and Lycos send out "spiders," small programs that go out to Web sites and systematically retrieve keywords and other information from all of the pages at the site, adding the information to the search engines' catalog of Web sites. Spammers use programs of similar design, setting them loose to search out Web sites and Usenet newsgroups looking for email addresses. Finding an Internet email address is easy: look for the "@" symbol that appears within a word like someguy@somewhere.com and chances are you've found an email address.

Whenever you make a post to a Usenet newsgroup, your email address is recorded in the post, allowing people to respond to it. It also allows spammers access to your email address. If you have a Web page that contains a mailto: reference with your email address on it, then you can expect a spam spider program to find it and send the information back to the spammer. These mechanized methods prove to be very effective—one junk email I received recently was offering me a list of 30,000,000 (count those zeros!) email addresses—so I could do my own spamming if I wanted—for the low, low price of only US$149.

To avoid getting spam, you do not have to isolate yourself from the rest of the Net. Instead, consider employing some simple techniques that will foil most spammers.

All programs that let you post to Usenet newsgroups give you the option of setting the "Reply to:" field in the program. This is the email address that appears as your return address if somebody wants to post a response to you directly. It is possible to leave this field blank in many cases, or to change it so that it will defeat the spammer's email trolling efforts, for

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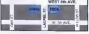

Lots of Parking on Laurel

Cooking spam

*Continued from page **36***

example someguy@_NO_SPAM_somewhere.ca. If you do this make sure you include a little message as a tag line explaining how people can respond to you directly

If you have a Web page that contains your email address, consider altering it slightly By employing the same technique mentioned previously with the mailto reference on a Web page (for example mailto someguy@_NO_SPAM_somewhere.ca you will defeat the spammer's efforts Again, include a note telling people what you have done so that people can still email you directly

If you are willing to go to some extra effort, you can also make a post through an anonymous remailing program to ensure that you do not get spammed. Anonymous remailers allow the user to send a newsgroup post through a different Internet server which then posts the message to the newsgroup on your behalf. The anonymous remailer keeps your original email address so that any email responses made to the post are forwarded to you If you are interested in following this up, check out the Remailer Home Page at http://electron.rutgers.edu/~gambino/anon_servers/anon.html

This can lead to getting spam email sent to the anonymous remailers. but at least the spammer does not get your original email address These efforts will not entirely eliminate the possibility of getting spam email, but they should greatly reduce it.

Fighting spam

These strategies are good, but for many people they probably come too late—your email address is on some spammer's list, and you are now getting lots of spam emails. So what can you do to fight back?

Tracking down who is responsible can have a good effect. If you get a spam, chances are a return email address or Web URL is listed. Many of these addresses are forged, and do not lead directly back to the spammer. Often, these posts contain clues as to the origin of the email

If you get an ad from pyramid_scheme@sucker_born_every_minute.com (a fictitious address) you can check the InterNIC database, which keeps track of all domain names on the Internet. A forged name more often than not leads back to the original source. By doing a simple "whois" command on a Unix-based Internet server (i.e. whois sucker_born_every_minute.com), or by telneting to rs.internic.net and running the "whois" command there, you can find the original source of the email, and often direct contact information

Once you have this information, you can send an email complaint. Usually there's little point in sending it to the spammer. However, each domain on the Internet has to have a working address in the form of "postmaster@domain name." If the spammer is not using its own Internet server, but is instead using that of a third-party Internet service provider (ISP), sending a complaint to this address can be very effective at stopping spam in some cases If the ISP receives enough complaints, it will likely kick the spammer from its system.

These techniques will not always work—dedicated spammers set up their own Web servers and blithely ignore complaints.

Other techniques are also available to minimize the spam you have to read, if not receive As email programs become more sophisticated, many of them are including "filters," which allow the user to screen email. They all work on the same basic principle: you set up the parameters that determine how an incoming email is to be dealt with. It is designed for such things as sorting any email you may receive from such things as listservs or prioritizing email based on who sent it.

If you have noticed any trend in the spam you have been receiving, like similar titles (i e "$$$ Make Big Money Now $$$"), or that they all tend to come from the same spammer domain (i.e sucker_born_every_minute.com), you can set up a filter to look for these features and screen them out from your regular email traffic

This function has been available in many Unix email programs for years, and is now available in the more recent versions of the email programs that come with the Netscape Navigator and Microsoft's Internet Explorer Web browsers. For more information, do a search on the word "filter" in the email program's online help

Also see this month's TUCOW's Best of the Net software column in this issue for a review of the more popular spam filters ❑

Winged envelope image courtesy John Wiley & Sons, from the book E-Mail Security: *How to Keep Your Electronic Messages Private*, by Bruce Schneier

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2 x 56K = confusion

Continued from page 3d

the market. Consumers won't need to worry about their initial investment in today's first K56flex modems, as all future products will be "backward-compatible with them."

Of course, Rockwell can't promise everything, as it is only the chipset supplier and does not usually sell finished modems to consumers.

USR, however, can. It has been quite keen to offer promises that users will not suffer any compatibility penalty by going with a X2 modem now rather than waiting for an ITU decision. In fact, in June, USR announced the "X2 Delivers" program, a three-point buyer protection plan that it claims will "guarantee" complete customer satisfaction.

As part of the X2 Delivers strategy, USR says X2 technology (56Kbps) products will be upgraded free of charge to the 56Kbps modem standard that will be adopted in 1998 by the ITU. The X2 products included in this program include those bought by the consumer, Internet service providers (ISPs) and corporations.

In addition, USR is offering purchasers of new X2 desktop and PC Card modems one month of free Internet service (which it estimates has a value of up to $25) from about 350 ISPs that offer X2 service, plus an unconditional 30-day satisfaction guaranteed return policy. The offer is available to customers in both the United States and Canada.

In both cases, the idea is to remove any customer barriers to going for a 56Kbps modem even if the final international specification for this class of modem is not yet fully agreed upon. "We've protected our customers' investments by making their X2 modem purchase worry free," says USR chairman and chief executive officer Casey Cowell. "US Robotics has consistently maintained that X2 modems will be upgradeable to whatever standard emerges. Now we've guaranteed it."

If you are out looking for a 56Kbps modem, the guaranteed free upgrade to standard offer covers purchases of the following products: X2 (56Kbps) Sportster modems, X2 (56Kbps) Courier modems, and X2 (56Kbps) Megahertz PC cards, (including those that have been upgraded to X2).

On the server side, the program applies to Total Control remote access servers, NETServers, MP modem pools and Courier I-Modems, including those that have been upgraded to X2.

Under the terms of the "X2 Delivers" program, US Robotics says it will provide individual customers who purchase an X2 modem at retail between June 1 and Sept. 15 one free month of service—up to $25—from any ISP that is live with X2 technology. All the customer needs to do is send in proof of purchase of the X2 modem and the monthly statement for ISP service. US Robotics will then send a cheque to reimburse the customer for the month of service.

And the 30-day unconditional guarantee for X2 consumer modems should also mean you can return any single X2 modem for any reason to the place of purchase for a full refund.

USR also suggests you shouldn't have to look too far for ISPs that support 56Kbps. It boasts support from more than 700 service providers, including America Online, Prodigy, IBM Global Network and NETCOM. ☐

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The give and take of push technology

BY BUD E. SMITH

NB—Push technology, also known as Web broadcasting or push/pull technology is the delivery of information to users across the Internet without active input from the user. In push technology, the user specifies what they want once, then receives many information updates based on their needs. The Web Broadcasting '97 conference, held in San Jose in June was the first conference devoted solely to push technology.

Thirteen problems with push

Author and *New York Times* computer columnist Stephen Manes launched the Web Broadcasting '97 conference on a sobering note with his description of the 13 key assertions that are widely held to assure the success of push technology, and the problems with each of them.

Manes told attendees that the most important underlying push assumptions are that bandwidth and user hard disk space are limitless. In fact, both are painfully limited, and this is already causing problems.

"I don't know how many people I talk to who were PointCast users for about a week," Manes told the audience. Limited bandwidth and hard disk space contribute to this retention problem for all push technologies.

Manes contradicted other key assumptions:

- Push channels don't build community any more than a traditional magazine like, say, *Reader's Digest* does.
- Internet connections aren't all work-based; persistent connections, most are intermittent, home-based or road-warrior dial-up connections.
- Interactivity isn't important except in specific, limited circumstances; when it is

Continued on page 45

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Seagate 1.28/2 19GB $245/310
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USR 33.6 OEM Int $116
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(Effective From August 1, 1997)

Push technology

Continued from page 43

used, it must work reliably and easily
- Intelligent agents aren t
- Users rarely get just the right information just in time
- The computer desktop is t to deliver information, most users spend as little as possible between laun ning applications.
- Advertisers will indeed l, users—who will prompt! "One man's push is anoth asserted Manes.
- New, innovative forms of ated—but mostly because because they meet real use
- New, exciting content wil larly new or exciting s cable TV channels for a pr expect
- Push channels won't save to traditional media in an ing a movie listing
- Push is unlikely to elimi tional Web surfing is act few areas where the Intern thing new and valuable c ditional media.

Manes concluded that ne nor the Internet are stable re enough to allow push to reac rent niche of early adopters mass medium yet " he concl long shot "

Push technology as latest Internet star—a
Despite ongoing controvers rounds of hype alternating wi technology is well positioned next new medium spawned And as happened with previ cesses such as email news Web the widespread deplo technology will help expanc and capacity of the Internet, ble for even more powerful te successfully deployed a few road

Arguments over whether largely miss the point Muc called push is technically ar with the client machine initi on a schedule. What matters user s experience if interesti information shows up at the needed push has succeeded barriers to the success of push of this decade, than there we of the Web itself when Net first shipped a few years ago

As push based products score more and more wins the Internet itself will grow to accommodate the bandwidth demands of push The larger Internet of the future will make possible even more powerful technologies, such as interactive multimedia that no longer needs to make excuses for its sound existence, has spawned so many solid competitors to traditional media

Traditional mail magazines, printed advertising catalogs, and newspapers all face competition from Internet-based technologies today While the Net-based media aren't likely to win tomorrow they're even less like-

reliable, stable, and easier to use. These improvements might spur the kind of large increase in demand that would allow many, many more people to get their hands on computers.

And that kind of growth might spur a solution to the hardest problem of all getting

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A primer for linking home or small office PCs and peripherals

BY RICHARD EVERS

Any office with two or more computers will benefit from having a local area network (LAN) installed. Good reasons for installing a LAN include

- increasing productivity and efficiency through sharing of files and storage facilities
- internal email,
- sharing printers, fax and other peripherals,
- remote access
- and security with automatic archiving of data, mirror-imaging of all networked storage areas, monitored network activity by user and action, and reduced electronic thievery

If you are ready to take the plunge into networking, do it carefully. A few poor decisions, a bad technical consultant, poor-quality server hardware, or improperly matched network software can all lead to problems for your office that are costly and time consuming to rectify. By taking more time to determine your exact needs and requirements, then taking the extra time to find a qualified technical consultant to help put it all together you will be repaid many times over in the future.

What is a local area network?
In simple terms, a local area network can be thought of as a group of computers connected together to share information, storage and peripheral devices.

Large corporations may have LANs connecting everything from desktop PCs to mainframe computers. However, for most TCP readers, setting up a LAN means connecting Macintosh computers or PCs running Windows, DOS or OS/2, along with a printer or two. This more simple configuration will be the focus of this article.

File and print sharing between two computers
If you are using an operating system that isn't too ancient, you will already have the ability to connect two computers via the serial or parallel ports and thereby share files, printers, and other resources.

When DOS 6.0 first appeared, Microsoft and IBM each provided this kind of functionality in the form of two free programs InterSrv.exe and Interlnk.exe. To use these programs, one system (the host) had to be running DOS 6.0 or greater (including Windows '95), while the other (the client) could run any DOS version from 3.0 or greater. The physical "network" connection was established by cabling both systems together through their serial or parallel (printer) ports.

This typically involves using a seven-wire null modem cable, or for faster parallel transfers (8-bits at a time), a bidirectional parallel cable. These cables are the same as what you'd find with file transfer programs like LapLink or Brooklyn Bridge. If you want to buy such a cable, check with a local computer retailer. Many retailers will stock cables identified as being "LapLink-compatible."

Windows '95 users can easily set up a more advanced two-computer, peer-to-peer network by going to Start on the pull-down menu, then to Programs, Accessories, and finally selecting the Direct Cable Connection option. Before calling the Installation Wizard into action, you will need to connect both computers together through their serial or parallel ports using the LapLink-style cables previously mentioned. Speed buffs can also use an extended capabilities port (ECP) cable, providing both computers have ECP parallel ports.

OS/2 Warp users also have an advanced two-computer network called IBM Peer for OS/2. This feature is enabled during installation by selecting the networking client option. As with the other Intel-based peer-to-peer LANs, you must connect both computers in your network together through their serial or parallel ports using LapLink-style cables.

Once connected, you can configure your shared resources by clicking on a device object, such as a drive object, selecting the properties entry on the menu, then selecting the share tab.

Peer-to-peer LANs
If you need to do more than just hook together two computers, consider a peer-to-peer LAN, particularly when speed, heavy

*Continued on page **50***

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Focus on small networks

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security and data integrity are less important than cost.

With Windows 3.11, Windows 95, all versions of the Macintosh operating system and OS/2 Warp, some form of peer-to-peer networking is provided as a standard feature.

On the PC side, you'll need to add a device called a network interface card to each PC you want on the network. Companies like 3Com and Bay Networks now offer network kits aimed at small or home office users. A typical kit might include two or three network interface cards, wiring, and a device called a hub.

With Windows 95, rather than using the Direct Cable Connection option, you would set up the network using Network Neighborhood.

The situation is similar with OS/2 Warp. You have the ability to share for a single user or multiple users, with a variety of security levels. By enabling the persistence box item, shared resources will always be available when you power up your network. The connections folder, which is found in the OS/2 system folder, allows a user to browse the resources available on the network. These resources can be used directly from the browser or can be dragged to the desktop for easy access.

Macintosh users automatically get an easy-to-install and truly advanced peer-to-peer networking solution called AppleTalk with their operating system. An AppleTalk network, can communicate through the printer port or, on newer models, a built-in Ethernet port (Apple attachment unit interface, or AAUI). Most now have a 10Base-T port built in. This provides access for upwards of 32 computers and peripherals with shared storage, file, printer and peripheral resources.

This form of networking allows users to power up or down, or plug in and out, at any time without disrupting the chain. Old-fashioned AppleTalk requires PC users to buy a PC AppleTalk card. A more common solution for putting Macs and PCs on the same LAN is to use Ethernet, which both platforms support. All that is required is software like MacLan (Miramar Software) or PSTalk (Cops).

Apple provides documentation with each Macintosh sold that fully explains how to set up an AppleTalk network. Overall, the hookup process is a snap and cables are inexpensive and easy to locate.

Artisoft Inc. has a well-established and extremely powerful MS-DOS and Windows-based peer-to-peer network product called LANtastic. LANtastic can work with standard network interface cards.

NetGear
Known as a supplier of high-end networking products, Bay Networks last year launched a line of products under the NetGear brand for the small and home office market. Contact: Bay Networks Canada. Tel: 416-733-8348.

It will work with any Intel-based computer from an 80286 and up, with at least 640KB of memory. It can operate as a standalone peer-to-peer network, or connect into existing client server LANs running under Novell Netware, Windows NT, and OS/2 Warp Connect.

Novell has two peer-to-peer solutions called Personal NetWare and Netware Lite.

Since Windows 3.11, Windows 95 and the Mac OS have built-in support for peer-to-peer networking, you will probably not need to consider these additional network operating systems unless you have special requirements. This isn't the case with server-based (sometimes called client server) networks which do need a separate network operating system.

Server-based networks

A server based LAN is called for when costs are less important than speed, security and data integrity. In this form, all workstations are hooked into a single server computer or several servers in more advanced settings.

Server-based LANs require a network operating system (NOS), network interface cards (NICs), cabling, and possibly hubs, repeaters and other devices if the LAN is large or covers an extended area, such as multiple floors in an office tower.

The server controls access to shared resources such as storage, printer, fax, modem and other peripheral devices. The server computer is traditionally a high speed unit with lots of memory and storage.

The most common network operating systems are Novell Netware, Windows NT Server, OS/2 LanServer (called OS/2 Warp Server in its latest incarnation), AppleShare IP 5.0, Banyan Vines, and a plethora of Unix-based servers.

The network server can either be operated as a completely independent system or shared as a workstation. However, the best option is to operate your server as an independent entity. Otherwise the server has to split its processing resources between network tasks and those imposed by the person using it as a workstation.

When selecting your server, do not try to save money buying uncertified hardware or by skimming back on necessary features. In order for a PC to become network operating system-certified, it has to pass a number of reliability and performance tests established by the network OS company. Thus, for example, you should look for servers advertised as being Novell-certified or Windows NT-certified. Otherwise, whatever cost savings you realize may be transformed into losses as the system dies for no apparent reason, works unreliably or slows under load.

If your network needs are not too extensive, you can save money by buying a slower server. For example, if you have 10 users on your network with most activity being word processing and printing, you don't really need a 233 MHz Pentium II as your server. But you should have one or two large and fairly fast hard drives and lots of memory. Repeat, lots of memory!

You will get a far greater system performance improvement per dollar spent by increasing memory than by upgrading the computer's CPU. This improvement also comes at a far lower cost as the price of memory chips have dropped to record lows.

A must in any quality network is an uninterruptible power supply (UPS). But make sure your UPS has a line-conditioning feature and supports auto shutdown via the serial cable.

A UPS will feed power to your LAN during a power outage long enough for your network operating system to inform users to save their files, then automatically shut down the network without file loss or damage. As information is probably the most important commodity today, the risk of file loss easily justifies the cost of a UPS.

Choosing your network operating system

All network operating systems today have most, if not all, of the following features:

- they work with most computers;
- will support most native file systems;
- can handle as few, or as many, users as needed, locally, or remotely in a wide area network (WAN);
- have a wealth of solid security features, including automatic detection of, and correction for, hardware and software faults, password protection, adjustable security rights and priority levels by user and monitoring of all activity, including software use and file access;
- mirroring (keep two identical copies) of all network storage in case of damage or failure;
- automatic high speed compression, and decompression, of data;
- can automatically initiate and validate data archiving processes;
- make efficient utilization of the server's CPU;
- work well with a wide range of servers, accessories and peripheral devices;
- support multiple data communications protocols;
- have built-in email messaging services;
- support Internet file transfer and mail protocols such as HTTP, FTP, SMTP and POP3.

There are many high-quality network operating systems available today. Unfortunately, it's almost impossible to separate truth from fiction as each manufacturer throws figurative rocks at each other claiming superiority and foul-play in the same breath.

The most truthful statement that can be made is that all network operating systems are exceptional in design and implementation, and are worthy of consideration. Each shares common characteristics, each has drawbacks and each has special unique characteristics that often make them highly attractive to their end users.

The most popular LAN network operating system in the world is Novell's Netware. It has held this position for many years. Next in line, and picking up market share quickly, is Microsoft's Windows NT Server.

The other network operating systems, each with their own loyal client base and following, include Banyan Vines and IBM's LAN Server. A strange twist is developing in the LAN industry at present where more Unix-based servers, which currently dominate the Internet and Intranet markets, are gaining ground in the LAN market. Only time will tell which NOS will come out on top overall.

Network topologies

While planning your network you must also select the way in which data will move about within it. Network topologies take three basic forms: linear bus, star and ring. For smaller networks, bus and star topologies are the most common.

In a linear bus topology, each workstation is connected to a main line. It is similar in construct to a string of lights on a circuit, with each light being a workstation. If one workstation goes off-line, the balance of the network remains unaffected. One disadvantage is that all network traffic goes along a single main line, which often leads to delays during heavy use. Another is that if a break occurs in the bus, the whole network is incapacitated.

In a star topology, all workstations are directly connected to a master controller called a hub, which acts like a digital traffic cop rerouting data and requests between devices on the network. For a network with a large number of workstations, multiple hubs can be configured within the environment. This arrangement is often referred to as a "star of stars" topology. Overall, this is a fairly simple design as far as data movement is concerned.

The weak link in star networks is the hub itself since all the network traffic is routed through this device. If the hub fails, all the computers attached to it lose the network connection.

In a ring topology, the server, and each workstation in the network, are connected in closed loop fashion. This design passes information around the network at known time intervals. Each node on the network has a unique identifier which permits reception, and transmission, of data to occur in a reliable manner.

Cabling systems

To some extent, the size of network you are contemplating and the physical topology you choose will dictate the cabling you use.

The most common options are coaxial cable (thin and thick), shielded twisted pair, unshielded twisted pair and fibre optic. Coaxial cabling is used primarily with bus topologies, whereas twisted pair and fibre optic might be found on any topology.

For the small networks, either thin coaxial cable or some form of twisted pair are the likely choice. Thin coaxial cable is the same gauge of cable used by cable TV companies. It is less than perfect for wiring an office or home office if esthetics are important to you. That said, it remains a highly reliable method of wiring.

Unshielded twisted pair (UTP) cabling looks like the telephone wiring inside your home and office. It is a very popular low-cost, easy-to-install, fairly high-speed, reliable wiring standard used within most LANs today. If you are creating anything less than a large scale LAN, UTP is a good choice.

Shielded twisted pair (STP) cabling is insulated wiring, in twisted-pair fashion for noise reduction, that supports reliable high-speed movement of data without the bulk of coaxial.

Data link protocols

The two most common examples of data link protocols for LANs are Ethernet and Token Ring. These protocols ensure data integrity from one node to the next, in other words, they ensure that the bits received are the same as the bits sent.

Ethernet—known as a carrier sense, multiple access with collision detection system (CSMA/CD)—has been around since the mid-'70s. It was developed by Xerox, Digital and Intel, and today is the most common network. Ethernet networks follow bus and star topologies.

When data is ready to be sent across an Ethernet network, the network card "listens" to the network to see if anything will collide with its request. If the path is clear, the data is sent immediately. If not, the NIC will delay its request for a random period of time before

*Continued on page **52***

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Focus on small networks

Continued from page ***50***

trying again When Ethernet networks are not too busy collisions rarely occur and network traffic moves quickly However as more data is sent, the frequency of collisions increases, slowing down the system.

IBM's Token Ring network is a token-passing system. Token passing networks follow ring topology (or star ring, sometimes called logical rings with IBM's Token Ring)

To best understand the technique, think of the network as a ring containing workstations and a server in a closed loop.

The premise behind token passing is that activity is always occurring over the network in known time intervals This activity takes the form of an identifier "token" leading an attached "train" of information that is constantly moving around the network in a circular fashion In this context, a token is a digital identifier that indicates if the token is available for use, or if it is an identifier leading a frame (train) of information that has been addressed to the server or a specific workstation.

Any workstation can place data in the train, and set the leading token for the destination workstation, server or task, providing the token was previously flagged as available. Conversely, all workstations and the server regularly check the network, waiting for tokens and trains, that have been specifically addressed to them. After doing this, the data is transmitted by the NIC to the next node in line along the network.

As data collisions cannot happen over token passing network, network slow-down only occur when the server computer natu rally bogs down under the weight of a abnormal workload. Besides IBM's Toke Ring ArcNET, an older network technology, a token-passing system

Hiring a consultant

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Richard Evers is a writer, software developer and con sultant in Waterloo Ont. He has also been the editor of three magazines co-author of two technical books and publisher of *Transactor* and *Transactor for the Amiga* magazines

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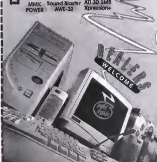

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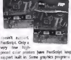
WHAT'S NEW

Birmy brings power of PostScript to inkjets • As Mac users have long known, an Wintel users are discovering, one of the highes power tools for professional desktop graphics cre ation is the Adobe PostScript page description lan guage. For the best looking and fastest printer out put of fine graphics, images and typography PostScript capability is a must.



Yet, the averag inkjet printer found i most home office doesn't support PostScript. Only a very few high-priced color printers have PostScript languag support built in. Some graphics programs off software-based "PostScript emulators," which u the computer's CPU and memory to translat PostScript information into a Raster Image, bitmap that the printer can output. Howeve PostScript emulation is typically very slow, bugg and riddled with compatibility issues.

To remedy this situation, Florida-based Birm Graphics Corp. has released a new line o PostScript compatible PowerRIP (Raster Imag Processor) utility software, including over a doze drivers for the entire Epson Stylus printer lin According to Birmy's Ted Birmingham, the new PowerRIP software is easy to install, fast, troubl free, and allows any inkjet printer to be produc tively used as a high-quality PostScript printer

The price for an individual PowerRIP driver about US$130 Epson has negotiated a deal wi Birmy to offer PowerRIPs as an option on some o its printer models, and PowerRIPs are available f a wide range of their printers, which are listed o the Birmy Web site Evaluation versions of the dr vers are also available for download from th Birmy site.—JE

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K5-75/Cyrix 6x86 P150+/166+/200+ CPU	Intel Pentium 120/133/150/166 MHz CPU	Intel Pentium 200/MMX166/200/233 MHz CPU	Intel Pentium Pro180/200/PII 233/266 MHz CPU
256K PB Cache	256K Pipe-line Burst Cache	512K Pipe-line Burst Cache	256K (PII 512k) Pipe-line Burst Cache
8MB RAM (exp. 128MB)	8MB RAM (exp. 128MB)	16MB E.D.O. RAM (exp. 128MB)	32MB E.D.O. RAM
1.6GB EIDE Hard Drive	2.0GB EIDE Hard Drive	2.5GB EIDE Hard Drive	2.5GB EIDE Hard Drive
1.44MB Floppy Drive	1.44MB Floppy Drive	1.44MB Floppy Drive	1.44MB Floppy Drive
PCI Video Card w/1M Memory (exp. to 2M)	PCI Video Card w/1M Memory (exp. to 2M)	ATI Mach64 Video Card w/1M DRAM	ATI Mach64 Video Card w/2M DRAM
14" NI, LR, SVGA, 1024x768 .28 Monitor	14" NI, LR, SVGA, 1024x768 .28 Monitor	15" NI, LR, SVGA Proview Monitor	15" NI, LR, SVGA Proview Monitor
Mini-tower Case w/200W PS	Mini-tower Case w/200W PS	Mini-tower Case w/230W PS	Mid-Tower Case w/230W PS
104 Win'95 Enhanced Keyboard	104 Win'95 Enhanced Keyboard	104 Win'95 Enhanced Keyboard	104 Win'95 Enhanced Keyboard
Logitech 3B Mouseman	Logitech 3B Mouseman	Logitech 3B Mouseman	Logitech 3B Mouseman
One month free internet access	One month free internet access	One month free internet access	One month free internet access
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72 pin 32M EDO	$159
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Pentium200/Pro200	$458/899
PentiumII 233/266 MHz	$1349/1549
686 P150+/166+/200+	$179/209/259
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HP LaserJet 5/5M/5SI	$1679/2359/3589
HP LaserJet 6MP/4M+	$1370/$2610
HP 4V/4MV/1600C	$2489/$3819/$1819
HP 6P/6MP	$949/$1179
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Brother HL-730, 600dpi 6ppm	$439
Brother HL-760, 1200dpi, 6ppm	$539
Epson Stylus 400/600/800	$279/$389/$539
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NEC 17XV+/P750	$969/$1229
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Diamond Stl 64 2M/4M V	$199/$259
Diamond 3D 2M EDO RAM	$99
Diamond Monster 3D 4M EDO	$249
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Millenium TV Tuner/Video C[illegible]	$169/$309

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Sound Blaster 32/64 AWE	$115/$129
Panasonic CD-ROM 12x/24x	$95/$149
Mitsumi CD-ROM 12x/16x	$95/$109
Toshiba CD-ROM 12x/16x	$99/$119
Sony CD-ROM 12x/16x	$99/$119
Pioneer 12x SCSI CD-ROM	$139
NEC 6x4 CD Changer	$129
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Sony 926S CD-Writer/+software	$429/499
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33.6/56 Kbps Int. Voice/Fax/Data	$75/149
Supra 33.6 Int. Voice/Fax/Data	$89
USR 33.6/56K Int. Fax/Data	$125/$209
USR 33.6/56K Int. Voice	$135/$229
33.6 Ext Voice/Fax/Data	$115
PCMCIA 28.8/33.6K Fax/Data	$109/229

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ASUS P55 **T2P4 HX 512K.**	$189
ASUS VX97 **256K**	$159
ASUS TX97 **512K.**	$215
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Pentium 166/200	$209/349
Cyrix 6x86 166+/200+	$105/139
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MMX Pentium233/K6-233	$669/689
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MS-Office Pro97	$459
NT 4.0 Wkstation Full	$289

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440CDX - P133MMX/16M/1.4G/10x/12.1"	$3339
NEC	
2030CD - P133/16M/1.4G/10x/12.1"	$3289
2650CD - P150MMX/16M/1.4G/10x/12.1"	$3288
IBM ThinkPad	
TP380 - P150/16M/1G/8x/12.1 DSN	$2950
KTX	
900 - P133/16M/1.27G/10x/12.1 DSN	$2469
Acer	

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Panasonic 1.44 Floppy
64bit SVGA 1M
104 Key Win95 Keyboard
T N T Mini Tower Case
Mitsumi Mouse & Pad
14" NI,LR SVGA Monitor

Monitor Included

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Power Pro / Pentium-II

Pentium Pro150 **$1239**

Intel Venus Natoma ATX MB
(**Acer AX6F** Pentium II MB)
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2.5GB EIDE Hard Drive
Panasonic 1.44 Floppy
ATI 3D Xpression 2M
3com 905TX 10/100 Ethernet
104 Key Win95 Keyboard
19" ATX Tower Case w/ 230W
Mitsumi PS/2 Mouse & Pad

ATX Style

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Power Station

6x86 166+ $1169

- Pentium MMX PCI MB
- 512K Pipeline Burst Cache
- 16MB EDO RAM
- 2.5GB EIDE
- Panasonic 1.44 Floppy
- 64bit MPEG Video
- Panasonic 12X CDROM
- 80W Multimedia Speakers
- 104 Key Win95 Keyboard
- 16 bit PnP Sound Card
- 33.6 Voice Fax/Modem
- 15" Mid Tower Case w/230W
- Mitsumi Mouse & Pad
- 15' NI,LR Digital Monitor

$37/mth

All Systems Monitor Included

Pentium 120/133	$1199/1219
Pentium 150	$1249
Cyrix PR 200+	$1229

Ultra Station

6x86 200+ $1399

- Pentium MMX PCI MB
- 512K Pipeline Cache
- 32MB EDO RAM
- 2.5GB EIDE
- Panasonic 1.44 Floppy
- S3 Virge 3D 64bit
- 2M EDO MPEG Video
- 16X CDROM
- 80W Multimedia Speakers
- 104 Key Win95 Keyboard
- SoundBlaster 16PnP Sound
- 33.6 Voice Fax/Modem
- 15" Mid Tower Case w/230W
- Mitsumi Mouse & Pad
- 15' NI,LR Digital Monitor

Lotus Smart Suit 97 only $49 !! with System Purchase

MMX K6-166/200	$1599/1669
Pentium 166/200	$1489/1639
MMX 166/M2-166	$1569/1529

Ultra Plus

Pentium MMX 166 $1769

- ABIT IT5H HX Server MB
- 512K Pipeline Cache
- (Intel Venus 440FX ATX MB)
- 32MB EDO RAM
- 2.5GB EIDE
- Panasonic 1.44 Floppy
- ATI 3D Xpression 2M MPEG/Movie
- 16X CDROM
- 80W Multimedia Speakers
- 104 Key Win95 Keyboard
- SoundBlaster 16 PnP Sound
- Supra 33.6 Voice Fax/Modem
- 17" Mid Tower Case w/230W
- Mitsumi Mouse & Pad
- 15' NI,LR Digital Monitor

Best Buy

MMX K6 200/233	$1819/2199
Pentium MMX 200/233	$1899/2139
Pro 150/200	$1799/2189

Ultra TX

Cyrix 166 MMX $1999

- ASUS TX97 MB
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- Panasonic 1.44 Floppy
- ATI 3D Xpression Plus 2M
- SGRAM Ultra Fast MPEG/Movie
- 24X CDROM
- 80W Multimedia Speakers
- 104 Key Win95 Keyboard
- SoundBlaster 32 PnP Sound
- USR 33.6 Voice Fax/Modem
- 19' Mid Tower Case w/230W
- Mitsumi Mouse & Pad
- 15' NI,LR Digital Monitor

6.4G ST add $230

MMX K6 200/233	$2099/2399
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Pentium II 233/266	$2969/3139

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JTS 1.3G	$199
Fujitsu 1.3/1.7G	$219/235
NEC 2.1/2.5G	$239/259
Quantum 3.2G Fireball	$299
Quantum 3.8G Fireball	$369
WD 3.1/4.0GB	$319/399
QT 3.2G ST UltraDMA/33	$319
Quantum 4.3/6.4G ST	$379/539

SCSI

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Diamond Stealth 3D 2M EDO	$89
ATI 3D Plus/TV 2M SDRAM	$129/149
ATI 3D Pro Turbo 4/8M	$199/275
ATI All-In-Wonder 4M	$349
Matrox Mystique II 4M	$199
Matrox Millenium II 4/8M	$339/$469
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Daytek 15" .28	$299
KTX 15" .28 1280x1024 Flat	$299
Sceptre 15' P531/17"	$369/$689
NEC 15" C500	$489
SONY 15" 100SX/SF .25	$509/579
Acer 17" 76ie/78ie .26 1600	$669/689
NEC 17XV+ Multisync	$909
Samsung 17" Gh	$739
Sceptre 17" P73 .28/.26	$629/$669
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U.S. Robotics

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Acer 56K Voice Fax	$149
Supra 56K Voice Fax	$169
USR 33.6 Voice/Fax	$135
USR 56K Fax/Voice	$199/$225
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Motorola 33.6 Ext. Fax	$189
USR 56K Ext. Fax (Box)	$259

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Epson C600 1440dpi	$389
HP DeskJet 692C Color	$385

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Brother HL760DX 1200 6ppm	$549
HP 6L 600dpi,6ppm	$529
Panasonic 1200dpi,6ppm	$469

ViewSonic

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Plextor 12X Int/Ext SCSI	$299/399
Plextor 20X Int/Ext SCSI	$329/429
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TDK CDR 74min 650MB	$8
Zoltrix 16bit 3D PnP Full Duplex	$23
Sound Blaster 16 PnP	$59
Sound Blaster 32 PnP	$105
Sound Blaster AWE64 (Retail)	$120
Sound Blaster AWE64 Gold 4M	$269
80/160W Multimedia Speaker	$20/$49
YAMAHA M7/M15/M20	$69/89/129
Acer 300F 600x300 dpi **Scanner**	$289
Diamond **3D Monster 4M** (Retail)	$269
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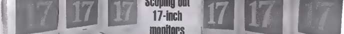

Scoping out 17-inch monitors

BY STEVE HALINDA AND TIM BINGHAM-WALLIS

Products reviewed
Acer AcerView 78ie
Apple AppleVision 1710AV
Azura 17M+
Daytek DT 1731D
Eizo FX-C6
GoldStar StudioWorks 78D
Hyundai DeluxScan 17B+
IBM G72
KDS VS-9
KTX TopScan
Mitsubishi Diamond Pro 87TXM
Monex SM785F
NEC P750
Nokia 447Xavc
Optiquest V773
Panasonic PanaMedia PM17
Philips Brilliance 107
Sceptre P75A
TTX 7755
ViewSonic G771

Without a doubt, one part of your computer will be around long after the rest of its innards have died or have been upgraded. Your old friend, the monitor, will serve you day after day, year after year pixel after pixel, unlike any other component. It'll be there for you when your hard drive dies or when your processor finally melts from playing too much Quake. Through thick and thin, it'll stick by you—but much like everything else in life, it too will have its day.

So, if you're among the countless thousands of people who will be in the market for a new monitor this year, we've gathered up the best of the best for this month's Test Lab to give you everything you'll need to know when going shopping. Since your new monitor will be around for a few years, consider its purchase to be a good investment. Take comfort in knowing that by choosing wisely your hard-earned money will be buying something that will serve you more than adequately on a daily basis.

Times they are a-changing

It wasn't long ago that when you went to buy a computer, you would automatically expect to get a 14-inch monitor to go along with it. Only recently has the move been shifting towards making 15 inch models the norm. These days, odds are that if you make a complete system purchase, it will be one of these slightly larger models that is included with the package.

However, if you have a need for something larger, the next step up is a 17-inch model. Monitors, unlike other parts of your computer don't suffer from ailments such as not being fast enough for the latest games. When most consumers buy a new monitor, it's usually because they want something bigger with more screen real estate. They want to venture into the world of higher resolutions and sharper images.

If you currently have a 14-inch monitor and are in the market for something new, you should definitely consider saving up the extra cash and going for a 17-inch unit rather than a 15-inch. The noticeable difference between 14- and 15-inches is nowhere near as appreciable as that between 14 and 17 inches. Besides, home users rarely need anything larger than 17 inches anyway, so you can sleep easy knowing you have the top of the line in viewing pleasure.

Behind the screens

Ever wonder how a monitor actually works? How is it that all those tiny dots go into forming beautifully complex images and vivid colors? The good news is you don't have to be a rocket scientist to grasp the basic fundamentals. The story goes as such.

Inside every monitor is a cathode ray tube (CRT). In the most simple terms, the CRT is a vacuum tube (void of any air) enclosed in a glass casing. On one side of the tube there is an electron gun while on the other side is the actual glass screen with a phosphorous coating. When the electron gun gets heated, it emits (or fires) a stream of very high-speed electrons which are attracted to the glass end of the tube (in case you forgot, electrons are those tiny little particle things that you were forced to learn about back in school. You know, the type of thing you told yourself you'd never actually encounter in the real world!)

So, here are those tiny (and we do mean tiny) electrons travelling down the dark void towards the glass. On the way the beam of electrons will encounter a focus control and a deflection coil, which are responsible for steering the electrons to the exact points on the phosphorous screen. When the beam hits the phosphors, they glow. When these phosphors are made to glow you see the images they form on the screen. Sound impressive? Well there's more!

Because of the large number of pixels on the screen and the way phosphors work, the electron gun must move at incredible speeds to sweep the entire screen. It does this by starting at the top left corner and sweeping the screen from left to right, going down line by line until it reaches the bottom right corner, at which point the process is repeated over and over again.

When phosphors are hit with the beam, they only glow for a very brief period of time which is why the electron gun has to quickly go back to its starting position and work its magic repeatedly. The rate at which the electron gun sweeps across the screen is called the horizontal scan rate, and is measured in kilohertz (kHz). The amount of times the screen gets refreshed, or redrawn, is known as the vertical refresh rate and is measured in Hertz (Hz). It is desirable to have your monitor refresh the screen at least 70 times per second, or 70 Hz, in order to avoid eyestrain from the flicker that often result from slower refresh rates.

Let's say your monitor is set for a resolution of 1,024x768 pixels (1,024 horizontal by 768 vertical). Some simple arithmetic reveals that at this resolution, there are 786,432 pixels on the screen. And if your refresh rate is 70 Hz, that means the electron gun is firing a beam that has to light up the equivalent of over 55 million pixels in just one second!

Monitors come in two categories—interlaced and non interlaced. It's safe to say that any monitor you're considering buying will be the newer non-interlaced kind. So what's the difference? Well, interlaced monitors require that the electron gun paint the image on the screen with a series of two sweeps rather than one.

It works like this: the electron gun goes to the top of the screen and draws all of the odd numbered lines first, then goes back up and repeats the process for the even numbered lines. The newer non-interlaced monitors will have the electron gun paint the screen using one sweep from top to bottom. The end result is less flicker and thereby less eyestrain.

Grilles and masks

CRT technology in monitors falls under two categories: aperture grille and shadow mask. The aperture grille consists of many wires which run vertically just behind the inside face of the CRT. This grille is used to channel the electron beams so that they strike the proper phosphor areas. To lessen the chance of movement of these wires in the grille, two damper wires are used. These two wires can be seen as two faint, very fine gray lines which run horizontally near the top third and bottom third of the screen.

The most popular aperture grille technologies are the Trinitron from Sony, the DiamondTron from Mitsubishi, and the SonicTron from ViewSonic.

A shadow mask is a metal or ceramic plate that has many holes, which are used to channel the electron beam so it strikes the exact location on the screen. Quite often you may encounter the term Invar Shadow Mask. Invar is a special ceramic alloy that can resist deformation when subjected to the intense heat of the electron beam. Better quality shadow masks are made using Invar.

So which is better? Shadow mask or aperture grille? The truth is, each technology has its advantages. An aperture grille displays brighter images with richer and more saturated colors. For graphics applications, such as desktop publishing, aperture grille is often preferred because of this. Shadow mask, however, offer displays with greater precision when it comes to putting images on the screen. For the most part, they use a flat square design that makes the images on the screen looked more dimensionally correct.

Quite often, CAD/CAM engineers prefer shadow masks to aperture grille because of the flatter displays, as well as the absence of the two damper wires that can be annoying at times, especially in that line of work. Choosing a particular CRT mask over another is a personal preference more than anything else.

Radiation from monitors

Modern monitors give off very low amounts of electromagnetic radiation. Although there has never been any scientific evidence to prove such emissions are harmful, common sense tells us that we should avoid them if possible.

Two of the strictest standards that regulate electromagnetic emissions come from Sweden. They are the MPR-II standard, and the TCO '92 standard. MPR-II was established in Sweden in 1990 to regulate electromagnetic, magnetic and electric field emissions, which led to the development of low radiation monitors. TCO '92 was established two years later to provide the strictest standards presently available in regulating electromagnetic field emissions, as well as power and energy conservation standards.

An even newer TCO 1995 standard has been developed to improve on the previous two, and offers to certify entire computer systems, not only monitors.

Needless to say, when shopping for a monitor, make sure that it is at the very minimum MPR-II compliant (most monitors on the market today are MPR II compliant). For more information on TCO, go to http://www.tco-info.com

What to look for

When purchasing a monitor, the first decision you have to make is how much you want

Continued on page **59**

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The bigger they are

Continued from page 56

to spend. As mentioned earlier, a monitor should be considered a long-term investment, so it may be in your best interest to save up a few more dollars and buy something higher end. Decide on what resolutions you want the monitor to support.

We recommend that you consider resolution of 1,024x768 with a refresh rate of at least 75Hz. Most of the monitors in this survey are capable of that task.

If your needs require you to go one step beyond to 1,280x1,024, you should definitely consider spending more money for a higher quality monitor. Once you get into this resolution, most monitors immediately begin to lose focus near the sides and corners. We found very few that were able to produce a sharp image consistently above 1,024x768.

Also, make sure you get the full manufacturer's warranty on your monitor. This holds especially true if you purchase your monitor from a local retailer. It's not often that a monitor will break down within the warranty period, but should the unthinkable happen, it's always good to be prepared. Having your monitor serviced by a third party can easily cost upwards of $50 an hour for the labor alone!

If possible, ask to see the particular monitor in action. Load up some images at various resolutions, as well as text documents. Check for overall image clarity, sharpness, color accuracy, and focus. Ensure that the image is sharp from corner to corner, and that text is easily readable in various font sizes.

Make sure there are no scratches on the screen's surface. This is important to determine before taking the monitor home, because most often the warranty will only cover "defects in manufacturing." Failure to recognize any defects before taking the monitor home could cause problems and aggravations you'd rather not have to deal with.

It isn't really 17 inches

Quite often, consumers get frustrated with all the information thrown at them from the computer industry. This is especially true when the numbers they give you don't always fit the facts.

In the world of hard drives, for example, there is the ongoing debate as to whether one megabyte should equal 1,000,000 bytes, or the actual binary equivalent of 1,048,576 bytes.

Similarly, in the monitor industry, there are two numbers you should be aware of. When measuring monitor sizes, the manufacturer will quite often list two particular measurements on their data sheets. The first, and most common, is the general class size of the monitor. Thus, in our survey this month, we tested all 17-inch monitors. However, none of them were actually 17-inches. Here's why.

When a manufacturer says a monitor measures 17 inches, they refer to a diagonal measurement from somewhere on the top left corner of the plastic casing to a point on the bottom right corner. The actual screen size, also known as the viewable area, is always slightly less.

For example, a typical 15-inch monitor will have a viewable area of 13.8 inches. Similarly, a 17-inch monitor has an average viewable area of 15.8 inches when measured diagonally. This "viewable area" refers to the actual size of the CRT, or cathode ray tube. You can measure this distance yourself with a tape measure by going from the very top left corner to the bottom right corner of the glass.

Earlier this year, a number of class action suits were settled in California relating to "claims generally relating to the alleged failure to disclose the actual viewable image size of monitor screens at the time such screens were sold," according to the Superior Court of California's Notice of Pendancy and Settlement of Class Action.

The individual and class actions covered a period between May 1991 and May 1995, and involved virtually every monitor maker selling products in the U.S. at the time.

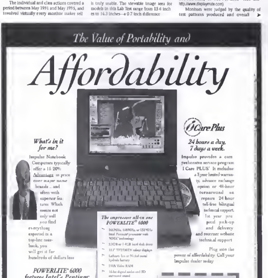
The settlement was modest—a US$13 rebate towards the purchase of a new monitor—but you'll notice monitor manufacturers are now careful to include a "viewable-image size" specification in their product literature.

The viewable-image size is the number you should be most concerned with, since it will determine how much of your 17-inch monitor is truly usable. The viewable image area for models in this Lab Test range from 15.6 inches to 16.3 inches—a 0.7 inch difference.

Our tests

We used DisplayMate by Sonera Technologies to run a series of test and color patterns on each monitor. DisplayMate is an excellent diagnostic tool designed to help users determine if their monitors and video cards are performing as they should. (For further information contact: Sonera Technologies, Tel 800-932-6323, or 908 747 6886. Web site: http://www.displaymate.com)

Monitors were judged by the quality of test patterns produced and overall ➤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price/performance/features were also taken into consideration.

Our captives

We asked vendors to send us what they considered their current "top of the line" 17 inch monitor. For some, this meant something fairly simple, while to others it meant the integration of speakers, microphones and even a video camera in one case!

Acer AcerView 78ie

Acer's latest 17-inch model is the 78ie. This monitor offers a reasonable compromise between quality and performance. With a 15.6 inch viewable screen and 0.26 mm dot pitch, the monitor is capable of delivering up to 1,280x1,024 at a solid 75 Hz refresh rate for great looking images. It features four color temperature presets, many configurable options through the easy to-use on screen display (OSD), and vertical refresh rates as high as 120 Hz. The 78ie has a net weight of 18 kg, which is fairly average.

Test and color patterns were sharp with good quality, and we encountered no problems. At just $850 estimated street price, this monitor offers good performance for the budget conscious, and has been seen advertised for as low as $680.

Apple AppleVision 1710AV

The 1710AV from Apple is sure to please any Mac user. It offers a viewable screen size of 16.1 inches, a dot pitch of 0.26 mm and a maximum resolution of 1,280x1,024 at 75 Hz. The monitor features built-in speakers and a microphone for out of the box multimedia, and is MPR II compliant.

It uses a Sony Trinitron tube to deliver sharp images with great clarity. When not in use, the monitor's power saving mode puts it into a zero watt sleep state, saving considerable amounts of energy. The 1710AV has an estimated street price of $1,299.

Azura 17M+

Azura offers a low-cost 17-inch monitor with a 0.28 mm dot pitch and 15.6-inch viewable screen. The maximum resolution on this unit is 1,280x1,024 at 60 Hz, which automatically places that particular mode into "use only when absolutely required." Test and color patterns proved to be quite good.

The vertical frequency ranges on this monitor are from 50 to 90 Hz, with the horizontal range being 30 to 65 kHz. The unit weighs 18 kg, consumes a maximum of 120 W while being used, and offers a three-year warranty. It is priced very attractively at just $650.

Daytek DT 1731D

The DT 1731D from Daytek is a great example of what you can buy for under $700 without a huge tradeoff on quality. This monitor offers a 16.3-inch viewable screen size, the largest in its class among this month's contenders. It features a 0.28 mm dot pitch, with a maximum vertical refresh rate of 90 Hz. At 1,280x1,024, the maximum attainable refresh rate is just 60 Hz, so we recommend you keep this monitor in 1,024x768 for a flicker-free display.

Weighing in at 17 kg and with a power consumption of 100 W, this monitor is a great option for anyone looking to get good performance at a low price. Speaking of price, you can have this monitor for only $639 estimated street price with a three-year warranty. Daytek expects to have a brand new model available by the time you read this. The new model will employ a Mitsubishi DiamondTron tube.

Eizo FX-C6

Known formerly by the Nanao name, Eizo monitors offer exceptional performance without compromise. This month we reviewed the new FX-C6, capable of resolutions as high as 1,600x1,200 at 68 Hz. Vertical

Continued on page 67

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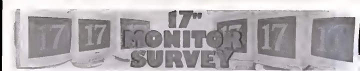

17" MONITOR SURVEY

	Viewable screen size (in.)	Dot pitch (mm)	Screen coating	Horizontal freq. range (kHz)	Vertical freq. range (Hz)	Max. resolution, @ frequency	Max. power consumption (W)	Weight (kg)	Onscreen display	Contact	Internet contact	Warranty	Price
Acer AcerView 76ie	15.6	0.26	AG,AS	30-66	50-120	1280x1024, 75Hz	120	18	Yes	905-479-8338	www.acer.com	1 year	850
Apple AppleVision 1710AV	16.1	0.25	AG,AS	30-82	50-120	1280x1024, 75Hz	150	NA	Yes	800-263-3394	www.apple.com	1 year	1299
Azura 17M+	15.8	0.28	AG, AS	30-66	50-90	1280x1024, 60Hz	120	18	Yes	905-940-3600	www.azura.com	3 years	650
Daytek DT-1731D	18.3	0.28	AG,AS	30-66	40-90	1280x1024, 60Hz	100	17	Yes	800-329-8361	www.daytek.com	3 years	630
✓ **Eizo FX-C6**	15.6	0.28	AG,AS	27-86	50-160	1600x1200, 80Hz	100	18.5	Yes	800-800-5202	www.eizo.com	3 years	999
Goldstar Studioworks 78D	16	0.28	AG,AS	30-86	50-120	1600x1280, 60Hz	120	20.5	Yes	905-670-0896	www.goldstar.com	3 years	995
Hyundai DeluxScan 17B+	15.7	0.28	AG,AS	30-70	50-150	1280x1024, 80Hz	80	15.8	Yes	800-568-0080	www.hei.co.kr	3 years	699
IBM G72	15.7	0.28	AG,AS	30-69	50-120	1280x1024, 60Hz	NA	17.7	Yes	800-465-7999	www.pc.ibm.com	3 years	1072
KDS VS-8	15.8	0.28	AG,AS	30-85	50-120	1600x1200, 75Hz	110	16.7	Yes	905-829-9077	www.orchestra.com	1 year	686
KTX TopScan	15.7	0.28	AG,AS	30-60	50-90	1280x1024, 60Hz	120	17.5	Yes	905-948-0080	www.edge.net.au	3 years	580
✓ **Mitsubishi Diamond Pro 87TXM**	16	0.25	AG,AS	30-86	50-130	1600x1200, 66Hz	120	22	Yes	905-475-7728	www.mitsubishi.com	3 years	1149
Monox SM706F	16	0.28	AG,AS,AR	30-66	50-120	1280x1024, 60Hz	80	16.5	Yes	905 709 3660	www.monoxtech.com	3 years	570
✓ **NEC P750**	15.6	0.25	AS	31-94	55-160	1600x1200, 75Hz	NA	20	Yes	800-366-0476	www.nec.com	3 years	1280
Nokia 447Xavc	15.7	0.26	AG,AS	31-92	50-150	1600x1200, 72Hz	150	22	Yes	800-296-6542	www.nokia.com	3 years	895
Optiquest V773	15.8	0.28	AG,AS	30-69	50-100	1280x1024, 60Hz	110	17	Yes	416-491-7088	www.viewsonic.com	3 years	800
Panasonic PanaMedia PM17	16	0.27	AG,AS,AR	30-69	50-100	1280x1024, 60Hz	130	18.5	Yes	905-624-5010	www.matsushita.com	3 years	899
Philips Brilliance 107	15.9	0.26	AG,AS,AR	30-86	50-160	1600x1200, 60Hz	115	21	No	416-292-5161	www.philips.com	3 years	1199
Sceptre P780	15.6	0.26	AG	30-87	50-120	1600x1200, 70Hz	125	16.8	Yes	800-788-2878	www.sceptretech.com	3 years	699
TTX 7786S	15.75	0.26	AG,AR,AS	30-86	50-120	1600x1200, 60Hz	130	17.5	Yes	905-238-8010	www.themontec.com	3 years	860
ViewSonic G771	16	0.27	AG,AS	30-70	50-100	1280x1024, 60Hz	90	16.7	Yes	416-491-7088	www.viewsonic.com	3 years	855

Notes. AG = anti-glare AS = anti-static AR = anti-reflective ✓ TCP editors' choice All prices shown are street prices or estimated street prices unless otherwise indicated.

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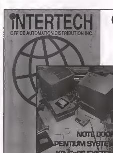

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P233MMx	$2269	$2199 K6
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Continued from page ***60***

refresh rates on this monitor go all the way up to 160 Hz for the ultimate flicker-free display

The FX-C6 has a 15 6-inch viewable screen with a dot pitch of 0.26 mm for sharp text and graphics It comes with preset color temperature settings ranging from 4,000 to 10 000K (degrees Kelvin) The on-screen display is available in a total of six different languages for the ultimate in flexibility Color reproduction and image quality were both exceptional. There were no noticeable focus problems at all when we switched it into a resolution of 1,280x1,024 Even 1 600x1,200 proved to be easily readable with small text. If performance is your first priority Eizo monitors are unmatched

GoldStar StudioWorks 78D

GoldStar's latest 17-inch monitor is the StudioWorks 78D This 16-inch viewable screen offers a fine dot pitch of 0 25 mm and refresh rates up to 120 Hz. The maximum attainable resolution on this monitor is 1 600x1 280 at 66 Hz, but we noticed focus deteriorates considerably at that resolution At 1 280x1 024, images and small text were still acceptable, with a slight amount of blurring at the corners.

The monitor has two color presets at 9,300 and 7,200K, has an easy to use onscreen display which is very thorough, and features 40 memory settings. Of those settings, 16 are preset at the factory leaving the user a total of 24 remaining—still far more than most users would need. Test patterns were good overall, although the two damper wires were noticeable at all times. The cost is just under $1,000 and the monitor comes with a three-year warranty

Hyundai DeluxScan 17B+

Monitors from Hyundai are known for offering a few neat variations on other brands with similar design. For example, although the dot pitch on this model is 0 28 mm with a viewable screen size of 15 6 inches It managed to produce some of the best images and test patterns we've seen At 1,280x1 024, focus was exceptional, although only at 60 Hz. The maximum vertical refresh rate on this monitor is 150 Hz. If you try to exceed either a refresh rate or resolution, the onscreen display will immediately give you a message saying "Out of Range"

Preset color temperatures are for 9,300 and 6,500K, plus one additional setting for a user-defined combination It meets both MPR-II and the TCO 92 standards. This monitor is definitely worth a second look.

IBM G72

IBM's latest creation in the line of 17 inch monitors comes in the form of this new model G72. The G72 is available in two colors, either pearl or stealth grey as listed by IBM Whatever happened to good old black and white?

The G72 features a 0.28 mm dot pitch on a 15.7-inch viewable screen. The maximum addressable resolution is 1,280x1,024 although only at 60 Hz. In lower resolutions, the G72 is capable of refresh rates as high as 120 Hz. The unit weighs 17 7 kg, has a three-year warranty and costs $1,072.

KDS VS-9

The KDS VS-9 packs a lot of punch for a great price. At just $895 this monitor offers great performance and won't break the bank. To start, it has a viewable screen size of 15 8 inches, with a dot pitch of 0.26 mm. Refresh rates up to 120 Hz are supported, with the maximum resolution being an incredible 1,600x1,200 at 75 Hz.

The OSD is excellent with very easy to read fonts and icons, making it simple to use. Color temperatures are preset at 6,500 and 9,300K, with room for an additional user-defined setting The VS-9 produced some very good quality images with sharp text Focus was exceptional at 1,280x1,024 If you're looking for a mix of great features, good performance and a great price, look no further.

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KTX TopScan

If you're a budget conscious shopper KTX has just the thing for you Its 17-inch TopScan model offers good overall performance at an unheard of price of just $599 With a viewable screen size of 15 7 inches and a 0 28 mm dot pitch this monitor produced good quality images up to 1,024x768 with a slight focus loss around the edges and corners Anything above this resolution is not recommended.

The monitor features a handy self test feature that runs through all of the options on the OSD and runs a self-test on each of them Vertical refresh rates are available as high as 90 Hz, with a horizontal scanning frequency of up to 69 kHz. If price is your primary concern, don't pass this one up

Mitsubishi Diamond Pro 87TXM

The Diamond Pro 87TXM from Mitsubishi is the kind of monitor you sit in front of and don't want to leave. With a 16-inch viewable screen and a dot pitch of a super fine 0.25 mm, every image this monitor produced was nothing short of excellent. Vertical refresh rates are available up to 130 Hz, with the highest resolution being 1,600x1 200 at 66 Hz.

We were surprised at how good the focus was at this extreme resolution The OSD is easy to understand with a wide variety of configurable options Although the two damper lines are faintly visible it's a small price to pay for this otherwise exceptional monitor. With an estimated street price of $1,149 and a three-year warranty, the 87TXM leaves nothing to be desired

Monex SM785F

Monex monitors are another great example of what can be had for under $700 This model features a 16-inch viewable screen with a dot pitch of 0 28 mm The maximum resolution is 1,280x1 024 at 60 Hz, meaning you'll want to use that setting only for short periods of time when required With a vertical frequency range of up to 120 Hz, all lower resolutions will provide flicker-free displays

When compared to typical 17 inch monitors, the Monex SM785F occupies considerably less desktop space while still providing a viewable screen of 16 inches. The unit consumes only 95 W of power, and weighs only 16.8 kg It can be yours for just $670 and is covered by a three-year parts and labor warranty which includes the CRT

NEC P750

When it comes to monitors NEC knows how to make 'em. Its latest 17-inch model is the P750 feature-rich and ready for anything. With a 15 6-inch viewable screen and a 0 25 mm dot pitch, images were sharp with vivid colors at any resolution We were surprised to see how good the focus was when we switched it into 1 600x1 200 At this resolution, the monitor can handle a refresh rate of an exceptional 75 Hz.

The OSD is easy to use and offers a wide range of configurable options. There are five color temperature presets, each one also being user configurable With an estimated street price of $1 280 and a three-year warranty this monitor is on the more expensive side but if performance is your number one concern, it leaves little to be desired.

Nokia 447Xavc

When it comes to monitors that do it all, the Nokia 447Xavc fits the bill This new model has a 15 7 inch viewable screen with a fine dot pitch of 0 25 mm. It is capable of an impressive 1,600x1 200 at 72 Hz for super-fine images without flicker. Although at this extreme resolution we did notice some degradation in focus, it was only slight At 1,280x1 024 the monitor produced excellent images and test patterns.

Vertical refresh rates can go up to 150 Hz when in lower resolutions for truly flicker free displays The OSD is configurable in seven languages and is very easy to use There are two custom color temperature profiles, as well as seven preset values Because of the Trinitron tube, the two damper wires are noticeable although no more so than they are on any other model with a similar tube If multimedia and videoconferencing are something you fancy this monitor was made with you in mind The 447Xavc incorporates speakers a microphone, and even a color video camera into the unit. Although the features are plentiful they demand a premium where price is concerned However, if you want a monitor that truly does it all, then get the Nokia 447Xavc

Optiquest V773

The latest in the Optiquest line of monitors is the model V773 It offers a good balance of features and competitive pricing. For starters it has a 15 8-inch viewable screen with a dot pitch of 0 26 mm. In its lower resolutions, the monitor can provide refresh rates as high as 160 Hz, although in its maximum resolution of 1 280x1 024 it is limited to 60 Hz.

The OSD is simple to use and offers several configurable options at the touch of a button At a resolution of 1 024x768 this monitor produced superb images with vivid colors. Focus and clarity were maintained even at its extreme resolution of 1 280x1 024 With an estimated street price of $800 and a three year warranty this monitor is an attractive option.

Panasonic PanaMedia PM17

Yet another multimedia monitor in this survey The PanaMedia PM17 from Panasonic offers a balance of great features for a price you may not expect This monitor has a 16-inch viewable screen size, which puts it near

Continued on page 70

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Dinosaur Facts # 107

Although the Brontosaurus weighed over 27 tonnes, it was no larger than a lemon like

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Thrustmaster F-16 TQS Flight Control	182

The bigger they are

Continued from page **68**

the top of its class. It offers a dot pitch of 0.27 mm and is capable of resolutions as high as 1,280x1,024 at a refresh rate of 60 Hz. At 1,024x768, however, it is capable of a solid 85 Hz for sharp flicker-free images.

Built into the PanaMedia PM17 are a pair of 3 W stereo dome speakers, the same ones that are incorporated into Panasonic television sets. Also built into the monitor is a microphone, ideal for presentation or video conferencing. The OSD is viewable in five languages. There are two preset color temperatures and one user customizable setting. Test patterns proved to be sharp with good color and contrast. The PM17 weighs in at 18.5 kg, meets MPR II emission guidelines, is covered by a three-year warranty and is priced at $899.

Philips Brilliance 107

The latest 17-inch model from Philips is the Brilliance 107. It features a 15.9-inch viewable display, a dot pitch of 0.26 mm and a maximum resolution of 1,600x1,280 at 60 Hz. Refresh rates of 75 Hz are offered at 1,280x1,024 and 1,024x768. Test patterns on this monitor proved to be of good quality overall, although there was a slight focus loss at 1,280x1,024 and above.

The Brilliance 107 also incorporates a pair of speakers and microphone into itself for multimedia-ready applications. This particular model is also the only one in our survey this month that did not offer any on screen controls. To make adjustments to the monitor, you must use the included CUSTOMAX software. Although this may seem like a nifty idea, it can have its downsides, as we discovered. The program produced a general protection fault (illegal operation) under Windows 95 with no way to circumvent the error. If, for whatever reason, the software is not compatible with something in your system, you have no way of configuring your monitor. Upon moving the monitor to another machine, the problem was resolved, although the issue of not being able to make any modifications to the monitor is still very much a possibility.

Making all of the controls software-driven is a great idea, but Philips should have thought about the very possible scenario of software misbehaviors and incompatibilities. The Brilliance 107 has an estimated street price of $1,199 and, like all other Philips monitors, is covered by a three-year warranty.

Sceptre P75A

From a company well known for making flat-panel LCD displays and desktop monitors comes its latest 17-inch model. The P75A from Sceptre has everything you could ask for in a 17-inch monitor. To start there is the 15.6-inch viewable screen, with a fine dot pitch of 0.26 mm. Vertical refresh rates can go as high as 120 Hz, with a maximum resolution being an extreme 1,600x1,200 at a solid 70 Hz. The OSD will allow you a full range of configurable options with your choice of five pre-programmed languages.

The P75A managed to produce good quality images and sharp text and was able to maintain its focus very well up to 1,280x1,024. Resolutions beyond that should only be used for brief periods of time when required to view a larger image.

If you're on the market for a monitor with great features, and want a brandname without breaking the bank, Sceptre's P75A has an estimated street price of only $699 and is covered by a three-year warranty.

TTX 7785S

The 7785S from TTX offers an excellent balance of features, performance and a competitive price. It features a viewable screen size of 15.75 inches, with a dot pitch of 0.26 mm. Resolutions as high as 1600x1,200 are supported at 60 Hz, with support for up to 120 Hz at lower resolutions. Test patterns proved to be sharp and focused even at the extreme resolutions. Even small fonts were clear and discernable.

The onscreen display on this model is very easy to use, and offers a full range of configurable options, including three color temperature presets at 6,500, 7,500 and 9,300K, each of which are fully custom configurable. The 7785 is very competitively priced at an estimated street price of $850, although it's been seen advertised for as low as $799. It is covered by a three year parts and labor warranty, with a two year warranty on the CRT. For great performance at a competitive price, give the 7785S from TTX a second look.

ViewSonic G771

When it comes to making monitors of all shapes and sizes ViewSonic has something for just about everyone. The G771 was designed to replace and improve upon the 17GS model, which was a top-seller for ViewSonic. Aside from being very aesthetically pleasing, the G771 offers some excellent features comparable with monitors in a higher price range. With a full 16-inch viewable display and a dot pitch of 0.27 mm, sharp images are the norm for this monitor. Its maximum addressable resolution is 1,280x1,024 at 60 Hz, but at 1,024x768 you get a solid flicker-free display at 87 Hz without eyestrain worries. At lower resolutions, the monitor is capable of refresh rates as high as 180 Hz!

The OSD is clear and easy to use, with a multitude of configurable options. Test patterns were very clear and sharp, and focus was very well maintained even at 1,280x1,024. The G771 is TCO and NUTEK certified, weighs 16.7 kg and is covered by a three year warranty. What's even better is the very competitive price of $850.

Continued on page **74**

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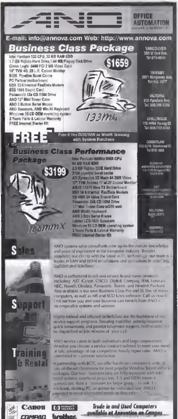

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Sound values in multimedia speakers

A panel of reviewers lends us their ears for *TCP's* speaker survey

BY DAVID CHAO

If you're going to buy a $60,000 Porsche, would you ask your dealer to install a set of wimpy, 12 inch no-name tires on the car? Of course not, those $60 tires would seriously limit the Porsche's performance and capability on the road, and ruin the driving experience. The Porsche simply wouldn't be able to deliver its full potential.

For the same reason, it makes absolutely no sense to buy a high-performance, multimedia-ready desktop computer and then equip it with a pair of $15 speakers. The $2,000 computer's potential to provide a rich, deep multimedia experience would be hampered by the tinny, muffled-sounding speakers.

Whether you're buying a new computer or hoping to upgrade your present system, do yourself a favor and set aside an extra fund for multimedia speakers. You won't be sorry because computer speakers do not become obsolete quickly like modems and some software.

You'll quickly realize how much of a difference it makes to have high-quality, crisp-sounding speakers when listening to a music CD, audio clips from a CD-ROM, or playing action-packed games.

In order to help you find the right speakers for your needs, budget and taste, we evaluated 18 sets of multimedia speakers from 11 manufacturers, ranging in price from $75 to just over $500. Although cheaper speakers are available, they deliver mediocre sound quality and performance.

We did not evaluate ultra-expensive, professional models that are priced in the $600 to $1,000 range since they cater to a niche audience.

All the speakers tested are magnetically shielded (to prevent interference with the computer monitor) and are self-amplified. Self amplification is necessary because the computer's sound card only delivers four watts of power, which isn't sufficient to produce a reasonable volume from the speakers.

Theoretically, a higher power rating translates to stronger, more vivid sound, but this isn't always the case. Note that the output power in our specification sheet is expressed in RMS (root-mean-square) format, as opposed to the often-exaggerated peak power.

Another factor contributing to good sound quality is the frequency response. Measured in Hertz (Hz), the frequency response provides an indication of the range of sound speakers can reproduce. The wider the range, the better. Once again, keep in mind that numbers alone do not tell the whole story.

Some models are two-piece designs (that is, a combination of left and right speakers) while others are three-piece. The three-piece units use a separate subwoofer (plus the two "satellite" speakers) to produce a deeper, heavier bass, and therefore are generally more expensive than the two-piece units. Because low-frequency bass is non-directional, subwoofers can be placed almost anywhere, most often under the desk. Remember, though, that most subwoofers are not magnetically shielded, so they should not sit beside the monitor.

Higher frequency sound, on the other hand, is reproduced through tweeters or mid-range "drivers," and each company uses a different combination of higher and lower frequency drivers to produce the best sound effect.

In order to enhance the listening experience of a computer game or music, some speaker companies have incorporated what they call a 3D-surround effect in their speakers. Different technology exists, but they all aim to achieve the same objective: to give you the illusion that the sound is actually coming from behind you, beside you, or from all over the room.

By utilizing a complex "algorithm" that's built into a processing chip, 3D systems use "psycho-acoustic" technique to produce phantom sound sources that seem to emanate from outside the speaker boundaries. The system produces this surround effect by manipulating the time delay and intensity of the sound coming from the left and right speakers. If done right, your ear interprets the altered sound as coming from sources other than the speakers facing you.

While the 3D-sound enhancement technology definitely increases the "depth" of the sound when playing games or listening to a multimedia CD-ROM, they do not always deliver a crisper, clearer sound. For example, turning on the 3D effect while playing a music CD could decrease the overall sound quality, and cause the system to deliver a muffled, vague sound in some models.

Altec Lansing's top model, the ACS500, may be an exception as it is the only unit to utilize Dolby's Pro-Logic Surround Sound, which decodes an encoded two-channel sound into five channels to produce the "surround" effect.

Last but not least, remember that when it comes to speakers, the most important factor is your own listening experience. Power output, frequency response, and 3D sound are meaningless if you're not happy with the way the speakers sound. So when choosing your

Continued on page 76

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Mid-tower Case w/230W PWS
Win95 Keyboard. Logitec Mouse

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Pentium MMX 166/200/233	340/458/665
Pentium Pro 150/180/200	268/509/690
AMD K6 MMX 166/200	319/410
IBM 6x86 166/200	128/189

Memory

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DIMM SDRAM(10ne) 16/32M	112/225

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ECS P5VX-Be 430VX 512K MMX	136
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ASUS VX97 430VX 512K MMX	149
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ASUS TX97e 430TX 512K MMX	235
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Acer AW32 Pro	89
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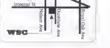

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Continued from page 70

Editors' Choices

Performance (three-way tie)

- Eizo FX-C6
- Mitsubishi Diamond Pro 87TXM
- NEC P750

These awards are given for raw performance and overall features. This month, competition was very tight in this category and as a result we are forced to hand out three awards to those that stand out from the competition.

The Eizo line of monitors are well-known in the industry for offering incredibly sharp, vivid images without compromise and the FX-C6 is a great example of this. Excellent image quality super high resolutions with great focus, and grade-A design are the makings of this monitor.

Last year Mitsubishi won a performance award for its Diamond Pro 17TX. Although that particular model is no longer in production it has been replaced by yet another award winning model the 87TXM. With its DiamondTron tube the 87TXM offers stunning images at any resolution and offers a wide range of refresh rates up to 130 Hz.

No strangers to winning awards, NEC monitors offer excellent design and functionality with features not easily matched by their competitors Everything from a super-high resolution of 1 600x1,200 at 75 Hz to a vertical refresh rate of up to 160 Hz are found in this monitor.

COMPUTER PAPER Editor's CHOICE

Price/Performance

- Sceptre P75A

Without a doubt the P75A from Sceptre offers the most bang for the buck. It features a small dot pitch a resolution of 1,600x1 200 at 70 Hz and vertical refresh rates up to 120 Hz, all at an incredibly attractive price from a leader in the monitor industry

Overall

- KDS VS-9

The KDS VS-9 is a monitor that offers great performance while at the same time bearing an extremely competitive price At just $895, this monitor is capable of display images of the high quality and extreme resolutions found on other monitors with greater price tags

Honorable Mentions

These go out to the **Panasonic FM17** and the **Nokia 447Xavc** The Panasonic FM17 is a great choice for an all-in-one monitor that features built-in speakers and a microphone and won t break the bank.

The Nokia 447Xavc goes one step further to provide speakers, a microphone and a color video camera all under one roof. It's not cheap but it sure is unique ❑

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3B mouse & Pad

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Multimedia speakers

Continued from page 72

speakers, bring your favorite music disc and let your ears be the judge. Ideally you should also listen to the sound from games or a multimedia application before buying speakers.

Before running off to your nearest computer store, read through our evaluation to help you narrow your choices. It's interesting to note that higher prices didn't always translate to a fuller, richer sound. As expected, companies that are well established in the home audio/music industry performed better than computer-industry-only manufacturers.

How we tested the speakers

While sound quality is a subjective difficult-to-measure attribute, we attempted to bring some consistency into the evaluation by applying a number of criteria. The following describes our basic approach for the test:

- All speakers were hooked up to the same Dell P200 computer (one at a time) and music CDs and/or multimedia CD-ROMs were played using the internal Sony 8x CD-ROM drive and installed Sound Blaster AWE32 sound card.
- A panel of three reviewers (one female, two male) evaluated the speakers' sound quality on a random basis and were asked to rate the sound quality using A, B, C, or D (adding a plus or minus sign to note subtle differences).
- A variety of CDs were played through the speakers, including rock music, jazz, soft rock and multimedia CD-ROMs, such as Microsoft Encarta 97 and a PC game called Descent.
- We listened to a home high-fidelity stereo sound system and cheap $15 speakers to understand the potential range in sound quality.
- Speakers were also evaluated in other areas, which included Design & Features (style, placement of controls, number of features), Product Quality (fit and finish), Space Efficiency (how much space the speaker takes up on the desk) and Value for Dollar (performance versus price).

Here are the results of our testing, listed alphabetically.

Advent Powered Partners

Because Advent belongs to International Jensen, a company well known in the audio industry it comes to the computer world with a wealth of experience in developing speakers. And its strength comes through loud and clear with its flagship model, the Advent AV570, which rings in at a pricey $530.

In terms of overall sound quality, the AV570 is flawless, with rich, deep sound that fills the room. Despite the fact that it doesn't have a separate subwoofer, its bass is strong, though it isn't as deep or as tight as those produced by Altec Lansing models.

While the AV570 stands out with an A+ rating for its ability to reproduce low-, mid- and high-frequency sound accurately, it falls a bit short in other areas, such as its lack of microphone/headphone jacks, heavy weight and a large footprint.

When you take into account the over-$500 price tag, the value of the Advent AV570 becomes somewhat questionable. It may sound better than just about any other model in this roundup, but it isn't twice as good as $200-plus speakers.

We also evaluated the cheaper, smaller AV370, which does utilize a separate subwoofer. The AV370 is a well built, nicely designed unit, but its sound quality isn't in the same league as other top performing models.

The AV370 gets a B in virtually all categories, which is a bit disappointing considering its $400 price tag. The subwoofer does a decent job of producing deep-sounding bass, but its bulky size is somewhat annoying.

Altec Lansing

Altec Lansing is yet another company with roots in the home stereo industry, which explains its excellent performance. We evaluated three models from this company, ranging in price from $130 to over $500.

At $530, the top-of-the-line ACS500 competes head-to-head with Advent's AV570, and produces a slightly different—but equally effective—sound from its whopping eight drivers and a subwoofer. The drivers are neatly integrated into the ACS500's unique, 45 7-cm

Continued on page 79

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Intel Pentium Pro 180

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✓32MB EDO 72pin RAM
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✓104 key Win95 Keyboard
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Multimedia speaker survey

	Product specifications											Subjective ratings					General information			
	System configuration	External subwoofer	3D-sound enhancement	Frequency response	Output power RMS (Watts)	Subwoofer output RMS (Watts)	Volume control	Bass/subwoofer control	Treble control	Microphone input jack	Headphone jack	Sound quality rating	Design & features rating	Product quality rating	Space efficiency rating	Value for dollar rating	Retail price	Warranty	Sales contact direct	Web site (http://www.)
Advent AV570	2-piece	No	None	40Hz-20kHz	70	N/A	Yes	Yes	Yes	No	No	A+	B+	A	C+	B-	528	2 Years	800-323-0707	adventaudio.com
Advent AV370	2-piece	Yes	None	60Hz-20kHz	20	30	Yes	Yes	Yes	No	No	B	B	A	B-	C+	398	2 Years	800-323-0707	adventaudio.com
Altec Lansing ACS500	3-piece	Yes	Dolby Pro-Logic	32Hz-20kHz	23	40	Yes	Yes	No	Yes	No	A+	A	A	B+	B-	528	1 Year	800-648-6663	altecmm.com
Altec Lansing ACS55	3-piece	Yes	Dolby Multi Surr	30Hz-20kHz	12	40	Yes	Yes	No	Yes	No	A	B+	A	A-	A-	264	1 Year	800-648-6663	altecmm.com
Altec Lansing ACS45	3-piece	Yes	None	42Hz-18kHz	8	20	Yes	Yes	No	Yes	No	B+	B-	A	A+	A+	132	1 Year	800-648-6663	altecmm.com
Bose MediaMate	2-piece	No	None	N/A	N/A	N/A	Yes	No	No	Yes	Yes	B	B	A	A+	C+	447	1 Year	800-www-bose	bose.com
Cambridge Soundworks	3-piece	Yes	None	N/A	10	33	Yes	Yes	No	No	No	A+	B-	B+	A+	A	200	1 Year	800-367-4434	hifi.com
Compucon SP565	2-piece	No	Yes	10Hz-26kHz	26	N/A	Yes	Yes	Yes	No	Yes	C+	B-	C	C+	B-	75	1 Year	604-279-9088	compucon.com
Jazz 908R	3-piece	Yes	None	35Hz-15kHz	10	11	Yes	Yes	No	No	No	B+	C+	B	A-	B	138	2 Years	818-336-2881	jazzspeakers.com
Jazz JS-930	2-piece	Yes	Yes	36Hz-20kHz	20	30	Yes	Yes	Yes	Yes	Yes	A-	A	B	B-	B	287	2 Years	818-336-2881	jazzspeakers.com
JBLMedia2 II Sub	3-piece	Yes	No	40Hz-20kHz	10	25	Yes	Yes	No	Yes	No	B+	B+	A	A	B-	330	1 Year	800-336-4JBL	jbl.com
LabtecLCS-2612	2-piece	Yes	Spatializer 3D	48Hz-20kHz	8	12	Yes	Yes	Yes	Yes	Yes	A-	A	A-	B-	A-	158	1 Year	360-896-2000	labtec.com
Labtec LCS-3210	2-piece	No	Spatializer 3D	48Hz-20kHz	20	N/A	Yes	Yes	Yes	Yes	Yes	B-	B+	A-	B-	B	158	1 Year	360-896-2000	labtec.com
MidiLand Caprezzo	4-piece	Yes	Yes	20Hz-20kHz	29	35	Yes	Yes	Yes	Yes	Yes	C+	C	C	C+	C-	399	5 Years	909-592-1168	midi-land.com
MidiLand MLI-130	2-piece	No	None	20Hz-25kHz	35	N/A	Yes	Yes	Yes	Yes	Yes	B-	B-	C+	C+	B+	120	5 Years	909-592-1168	midi-land.com
Roland MA-8	2-piece	No	No	35Hz-18kHz	10	N/A	Yes	Yes	Yes	Yes	Yes	B+	A-	B+	C+	A-	190	1 Year	416-212-9707	rolandus.com
Sony SRS PC61	2-piece	No	No	80Hz-20kHz	20	N/A	Yes	Yes	No	Yes	No	B-	B	A+	B+	C+	220	1 Year	800-961-SONY	ports.com
Sony SRS-PC300D	3-piece	Yes	No	N/A	10	16	Yes	Yes	No	Yes	Yes	B+	A-	A+	B-	B-	260	1 Year	800-961-SONY	sony.com

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(18-in.) tall "tower" design The Altec Lansing ACS500, the Advent AV570, and the Cambridge SoundWorks are the only speakers in this evaluation to achieve A+ ratings for sound quality

The ACS500's clean warm sound is pleasant regardless of whether you're playing rock music jazz or listening to an audio clip from Microsoft s Encarta.

As far as we know the ACS500 is the only model in this class to feature Dolby Pro-Logic Surround Sound technology which greatly increases the effect of surround sound when using software pre-encoded with this technology (we didn t have an opportunity to actually listen to this)

Overall the ACS500 packs impressive performance and rates slightly higher than the competing Advent AV570, but it still suffers from the same "is it worth the price?" value judgement as the flagship Advent

At $264 the ACS55 is about half the price of the ACS500 yet its crisp, vivid sound is pleasant and well balanced With a funky toy-like design, the ACS55 is directly aimed at game players who want good sound features and nifty looks In fact the ACS55 is the industry's first model to boast Dolby s Multimedia Surround technology

This surround technology works on any music or sound and its overall effect is surprisingly good—better than any other 3D systems tested in this group As you "dial up" the surround effect the sound appears to come from behind you

The ACS55 Power Gaming System offers excellent value for its quality and features but its Generation X targeted design may not appeal to everyone

Altec Lansing also offers an affordable three-piece unit called the ACS45 Although it lacks surround-sound technology and can't match the more expensive Altec Lansing models in terms of features or power output the ACS45 is a real sleeper in this test. Despite its low $130 price tag the ACS45 packs a lot of punch with clear, distortion-free sound and rich tight bass. Besides, it takes up virtually no space on your desk, thanks to its compact size

The ACS45 gets my nod as the overall "value winner," with an excellent value-for-dollar rating.

Bose

Although the compact attractively designed Bose MediaMate speakers are reasonably priced at $289 (the price was recently reduced from $450), they fell short of our expectations. Like all Bose products, they produce extremely clear crisp sound that was unmatched by others (in terms of the clarity and purity of the sound) Their sharp notes and accurate sound reproduction were especially noticeable in the mid-to high frequency range.

However, their ability to provide deep, low frequency bass was surprisingly weak, no doubt due to the lack of a separate subwoofer. This resulted in a sound that appeared somewhat tinny and feeble when compared to other speakers in this price range As well the MediMate speakers didn't offer surround sound, treble control bass control, or subwoofer as an option.

If you absolutely love high notes and want the cleanest sound around—but don t care for the richer, deeper sound—the distortion-free MediaMates are still worth consideration especially now that the price is substantially lower If you want a good balance of crisp treble and strong, "thumpy" sound, though you'll be better off investing in one of the other highly rated products

Cambridge SoundWorks

If it wasn t for the somewhat clumsy design and controls the SoundWorks speakers from Cambridge SoundWorks would have easily garnered the overall best-buy rating among all the speakers evaluated here Why? Simple It offers the best sound quality for the money, even when it's compared to pricier units.

With two tiny satellite speakers and one medium-sized subwoofer, the $290 SoundWorks delivers bright, vivid sound that s strong across all frequency ranges. It really captured an A+ rating from every reviewer, and left us wondering why anyone would spend more money when you can get a first-rate model for less than $300

On the practical front however the SoundWorks gets low ratings in such areas as controls (no treble control headphone jack or microphone jack) design (sensitive, finicky "add-on" volume control), and setup (it still utilizes the conventional wire crimp style versus plug-in jack for speaker connections)

If you can put up with some quirky issues, the SoundWorks offers the most pleasing sound for the buck. Note, by the way, that Cambridge SoundWorks is now 20 percent owned by Creative Labs, and therefore its speakers will soon be distributed as part of Creative Lab's multimedia kits

Compucon

Distributed by FASTECH Computer the Compucon SP965 is the cheapest unit tested Unfortunately, its low $75 price tag translates directly to an equally low-quality product that's disappointing in most areas With a cheap-looking design slightly above-average sound quality weak 3D effect and large foot print, the SP965 falls short in quality sound reproduction, and design

If you're looking for a low-cost alternative, try the MidiLand MLi 130 instead It retails for $120 but its street price is under $80 and the sound quality is superior to the Compucon unit

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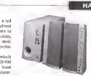
Jazz

Aesthetically the Jazz speakers appear a tad cheap especially when compared to Advent or Altec Lansing models Once you listen to music or game sound through these speakers, however you quickly realize that these models exhibit high-quality sound and performance



At just below $300 the Jazz JS-930 (which consists of Jazz JS-300 speakers and JS-900 subwoofer) isn't cheap but it does boast above-average performance and features With a mute button, treble/bass/balance controls, headphone/microphone jack, and 3D-surround technology the JS-930 provides a lot of features for the money It even has three different settings for its surround technology, though I found the 3D effect to be weak and almost meaningless.

If you enjoy higher frequency sound, take note of the JS-300 it offered clear, strong treble that was almost ear piercing when the treble was cranked up to the maximum.

The JS-930 is a strong performer overall, but I was surprised to see how well the cheaper, $200 902R model stacked up against the 930 in terms of sound quality

Although the bass tended to be a bit boomy, the mid range sound and vocals were particularly strong and crisp. Lack of controls and a generic-looking design detracted from an otherwise competent unit.

JBL

When it comes to delivering good sound quality and attractive packaging, the JBL Media2 (speakers) and MediaSub (subwoofer) are solid performers. The neatly designed, slim-looking speakers look great on your desktop without taking up much space If I were to give an award for the "best looking system" in this roundup the JBL units would win hands down (even the subwoofer boasts an expensive hi-fi look)

When you consider its relatively high price tag ($330 for the speakers and the sub) and lack of features, however, the value-for money rating drops somewhat Still, with warm, pleasing sound quality and exceptionally strong bass, the JBL units should be on your shopping list, especially if aesthetics and product quality are important factors.

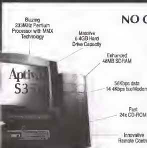
Labtec

Feature for feature, dollar for dollar the Labtec models stand out as value leaders in our test Although the two Labtec models evaluated didn't achieve top ratings in the sound quality test, their strengths lie with their user friendly design and feature rich package

Both the LCS-2612 and LCS-3210 show off a high level of controls, Spatializer 3D sound conveniently located headphone/

microphone jacks and attractive shapes, all for less than $160. The Spatializer 3D does indeed increase the perception that the sound is coming from somewhere else and Labtec models do a better job of it than 3D units from MidiLand, Jazz, or Compucon

The 2612 and 3210 differ in that the 2612 is a three-piece design featuring a separate,



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magnetically shielded subwoofer (which by the way can't be located too far from you as it has all the controls for volume, bass, etc). While the two models offer similar features and technology, we found the 2612 to be a better performer, especially when playing music CDs.

Tight, sharp sound characterized the 2612, while the two-piece 3210 delivered somewhat hollow sounding music (this is especially pronounced when you put the 3D switch on). The sound isn't all that bad, mind you, but for the same money, I'd pick the clearer, crisper sounding 2612.

If convenience, features and value are important criteria, the Labtec 2612 scores high as one of the best buys in the $150 to $200 price range.

MidiLand

MidiLand produced mixed results in our test, with its high-end Capriccio getting poor ratings and its low-cost MLi 130 receiving a solid B+ for value. At over $300 the top-of-the-line Capriccio produced dissatisfying results in all categories, despite its feature-rich content such as a separate subwoofer, 3D sound and loads of controls.

The Altec Lansing look-alike design didn't help the Capriccio, which suffered from cheap-looking components, an awkward "remote" controller, and poor product quality. While the sound was above average with strong bass, the rest of the system simply did not measure up to the industry standard. We gave the Capriccio C- for value.

Strangely enough, the significantly cheaper MLi 130 did much better in our test. Excellent clarity and vivid sound surprised all of us, though its two-piece design prevented it from having a stronger bass.

If you don't mind the bulky size and somewhat cheap-looking finish (the triangular design is a direct copy from Advent) the MLi 130, with a street price of $80, is a real bargain. As a starter speaker, this unit is an excellent model to consider.

Roland

Highly respected in the music industry, Roland submitted only one speaker for our evaluation (they market a number of models). This didn't turn out to be a disadvantage, however, since its MA-8 two-piece speaker performed exceptionally well.

Well designed and user friendly, the MA-8 scored better in sound quality than many speakers costing twice the price. Despite the lack of a separate subwoofer, its 16-watt speakers produced rich, distortion-free sound that should please even the most demanding audiophiles.

Although the MA-8 trails behind its similarly priced competitor, the Labtec 2612, in terms of overall design and features, the sound coming through the MA-8 unit is much more natural and pleasant.

In the $150 to $200 range, the Roland MA-8 is a hard model to beat.

Sony

As expected from Sony, both the $220 SRS-PC91 and three-piece $250 SRS-PC300D show off first class workmanship and fit-and-finish, but they don't stand out as leaders in this price range. The slightly cheaper PC91, in particular received only a B- rating for sound and C+ for overall value, which makes this unit a mid performer at best.

The PC91 does deliver crisp, fresh sound and comes in an attractively designed compact package, but its low frequency sound is almost non-existent. This results in tinny sounding vocals and instruments, though audio clips come through clear and sharp.

The three piece PC300D, on the other hand, fared much better thanks to stronger, richer sound and bass, combined with space efficient "satellite" speakers that take up very little desk space. Unfortunately, the power button, bass control, and volume control are all located on the subwoofer, which means you can't really put the hefty subwoofer under the desk.

Retailing at $250, the PC300D doesn't offer the most value in this class, but it is a good unit nevertheless, and provides Sony-famous quality and reliability. I've seen street prices for this model below $200, if you can find it at this price, the PC300D could be a decent buy.

What's the bottom line?

Under $200

Winner: Altec Lansing ACS45—easily wins with rich sound and excellent quality.

Runner-up: Labtec LCS-2612—loaded with features and affordably priced, the 2612 offers plenty of bang for the buck.

$200 to $350

Winner: Cambridge SoundWorks—its superb sound quality will knock your socks off.

Runner-up: Altec Lansing ACS55—If you can put up with the quirky looks, it's a first-rate model with best in-class 3D surround.

$350 and up

Winner: Altec Lansing ACS500—this is a close call, but the ACS500's rich, balanced sound and A-grade fit and finish are unbeatable at any price.

Runner-up: Advent AV570—boasts excellent performance and quality, packaged inside an attractive casing.

All-Around Value Winner:

Altec Lansing ACS45—Without a doubt, this titles goes to the Altec Lansing ACS45. No other speakers in this roundup offer this level of sound quality and features for the price. At just over $130, the ACS45 is a real gem.

Best Sound Quality Overall:

Cambridge SoundWorks—If price is not a consideration, which model boasts the best sound quality? Though this was a difficult assessment, the Cambridge SoundWorks speakers beat out the Altec Lansing ACS500 and Advent AV570 by a small margin. The SoundWorks provides the richest, sharpest sound—bar none. ☐

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Lease options for office space

You may prefer to work at home and not rent office space. Or you may prefer to minimize the risk of leasing and rent an office in an executive suite business centre. However, if you decide to take the jump and rent office space and commit to a number of years, you should be aware of the variety of options available to you. That way you can assess the pros and cons and negotiate one that is suitable for your present and projected business needs.

The following types of leases are the most common. The name used to describe each lease may vary in your region, but the concept behind the description is the same.

Net lease
In a net lease situation, the tenant pays a flat rate which is all-inclusive of heat, light, water, taxes, common-area use, ground maintenance, building repairs, etc.

Net lease plus taxes
This is similar to the net lease, except there is an agreed-upon extra expense for taxes. Any taxes over and above the base tax rate are passed on to the tenant totally or partially, depending on what is negotiated. The extra cost for taxes would normally be passed on once a year after the tax assessment has been obtained and paid by the landlord.

Triple net lease
In this type of lease situation the base rent is a certain price (for example, $10 per square foot of area rented), but the tenant is responsible for paying his proportionate share of all the extra charges incurred by the landlord. These are normally outlined in the lease agreement. These extra costs or operating expenses could add up to the equivalent of another $6 or $7 per square foot, for example. The total monthly rental outlay would therefore be approximately $16 per square foot. The operating costs may fluctuate each year based on taxes, maintenance, insurance, administrative and management costs. When one refers to a cost per square foot for lease space, it is quoted on an annual basis, to calculate the monthly rent, you multiply the square footage of the premises by the cost per square foot, and divide by 12.

Index lease
This type of lease is one in which the rent varies based on a formula of costs incurred by the landlord. For instance, the lease may vary every year based on the cost-of-living index to account for inflation.

Variable lease
A variable lease is one in which the annual rent is agreed upon in terms of how it is calculated, but the monthly rent may vary depending on the seasonal nature of the cash flow of the business. For example, there could be a very low or no-rent period of three or four months because business activity is slow. The rent for the remaining months of the year would be high, to compensate for the period when the business was unable to pay rent.

Graduated lease
This type of lease requires an increase in rental payment every month for a specified period of time. This is usually done to assist a business in its first year of starting up, so that the monthly payments are related to the increase in cash flow and revenue of the business. At the end of the graduated period, the rental payments by the tenant would then be at a fixed rate, usually as in a net or triple net lease.

Percentage lease
The percentage lease is commonly used in the renting of retail stores in shopping centres. The landlord therefore obtains the benefit that the tenant obtains in terms of the large traffic volume going through the shopping centre, which the landlord has established. Some of these types of leases are based on net profit and others on gross profit, with a base minimum. The landlord also requires stringent accounting and reporting controls. In effect, they have become your quasi-business partner. Such a relationship can risky and de-motivating. It depends on the deal.

Always make sure you have a lawyer experienced in leases giving you objective and candid feedback on the lease terms. Leases are full of jargon that has significant legal implications. You'll want to understand every aspect of the terms of the proposed lease. The landlord's lease is almost invariably one-sided in the landlord's favour. You need to have your lawyer negotiate a more balanced lease on your behalf, if at all possible. Otherwise, take your business elsewhere. ❑

Douglas Gray, LL.B., is a Vancouver-based lawyer by training, speaker, columnist and author of 15 bestselling books, plus a real estate investment software program. His books include The Complete Canadian Small Business Guide *and* Home Inc., The Canadian Home-Based Business Guide *(both published by McGraw-Hill Ryerson) and* Start and Run a Profitable Consulting Business *and* Marketing Your Product *(both published by Self-Counsel Press)*

[illegible]

Closing the net on serial crimes

Vancouver detective's software points to offenders' "likely location"

BY GEOF WHEELWRIGHT

Computer-based geographical profiling of criminals is putting the Vancouver City Police Department on the map.

Detective-Inspector Kim Rossmo a 17-year veteran of the force, is the man who developed this computer-based system for calculating the likely location of serial criminals—and he is getting worldwide attention for his efforts

Geographical profiling software takes the locations of a series of connected rapes, murders, arsons or other serial crimes that are likely to be committed by a single offender, and then uses those locations to figure out likely locations where the offender might live.

It was used to great effect last year in making an arrest in the high-profile Abbotsford killer case in which a man believed to be tied to the murder of one teenager and to attacks on several other women taunted police and local radio stations with phone calls

Not only has Rossmo's work encouraged the Vancouver Police Force to create a permanent geographic profiling unit with Rossmo at its head, but Rossmo has also been helping the RCMP establish geographic profiling units of its own throughout the country He says this work all came out of research he did while earning his PhD in criminology at Simon Fraser University

Even though Rossmo only started work on the theory in 1989 he says he began to get "requests for operational assistance" from the Vancouver police force and others as early as 1990 The demand for the service grew over time. By 1992, it occupied half of Rossmo's working time and became a full time operation in 1995

It has also earned Rossmo an international reputation with forces in the United States and a number of European countries, along with many Canadian provincial police forces, calling on his expertise. The idea is quite simple.

"We use the locations of a connected series of crimes—such as murders rapes, arsons, bombing and robberies—and then use the system to calculate the most likely locations for the offender's residence," says Rossmo. "I looked at research in the field of environmental criminology and at how offenders traveled to commit their crimes and then asked how can you 'invert' this (information) if you know the locations of the crimes This led to a mathematical model that uses upwards of a million calculations to produce a 'jeopardy surface,' and the grid and height of that shows where the perpetrator might be located."

He says that the model works best when finding "loner" criminals or at most, teams of two And he is quick to point out that the computer alone is unlikely to solve a crime "Profiles never solve a crime, they are only meant to be one more tool in an investigator's toolkit," he explains "They focus an investigation and serve as an information management strategy because these cases usually suffer from information overload"

Rossmo says other agencies are looking at starting up their own geographic profiling units. "The RCMP will be doing it, and I am having someone train with me to establish units in Vancouver, Winnipeg and Ottawa," he adds "The Ontario Provincial Police are considering it as well We will try to achieve a role in training other people and getting them properly established with geographical profiling within their own agencies" ❑

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A few good tools

A look at some junk email filters available at TUCOWS

BY SCOYT SWEOOBSKI

Spam, or unsolicited commercial email, seems to be the fastest growth industry on the Internet. Most Internet service providers (ISPs) have strong policies about unsolicited email, and once a spammer is located, it's usually a simple matter to stop them. There are two types of spammers: new users who seem unaware that it is simply not "OK" to send strangers large volumes of unwanted mail and well-organized and unrepentant bulk-spammers, such as Cyberpromotions.

Regulators in Canada and the United States are trying to make junk email illegal in the same way that it is illegal to send junk faxes. In the meantime, Internet users and ISPs are left to fend off the hordes of spammers with technological tools. We've taken a look at some email filtering and checking programs that we hope will help lighten the load.

E-Check

Version: 2.2
Byte size: 837 520
Licence: Shareware
Web site:
http://king.sc.mtu.edu.tw/~s3781246/EChack.htm

E-Check is an email checker that notifies you of new mail for multiple email accounts, downloads all the headers, and lets you delete mail on the server. You can automate the deletion process, based on subject or sender. Unfortunately the demo version of E-Check is crippled, so it is difficult to check the filtering capabilities of the program. In addition, it is limited to five filtering fields—not terribly helpful in the face of the hundreds of online spammers.

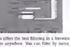
eFilter

Version: 2.1
Byte size: 2,688,518
Licence: Shareware
Web site: http://www.catalog.com/tnw/eFilter

eFilter is a mail application that checks the mail waiting on your pop-mail server for key phrases you define (such as MAKE MONEY NOW) and automatically deletes messages with those key words. You configure eFilter to work in tandem with your regular email reader (it works quite well with Eudora). The demo version is limited to 10 trials, and is significantly slower than the native filters in Eudora and Pegasus.

Pegasus

Version: 2.54 (official release)
Byte size: 1 796 265
Licence: Freeware
Web site: http://www.pegasus.usa.com/
Also Available: Windows 3.x version



Pegasus offers the best filtering in a freeware program anywhere. You can filter by name, string, and from any field in the email, and process filtered messages in a variety of ways. Messages can be stored in separate folders or returned to sender, automatically. Pegasus is a rich and complex reader and it's well worth the effort to get to know.

Eudora Light

Version: 3.0.1 4/12 release
File name: eul301.exe
Byte size: 4 235 500
License: Postcardware (send in a postcard and it's yours for free)
Also available: Windows 3.x version
Web site: http://www.eudora.com/win/light301b.html

Eudora Light is a trimmed down version of Eudora Pro. Its filter only permits you to delete messages by transferring them to Eudora's Trash Bin. This is sufficient for most email users, but the "pro" version features much more extensive filtering capabilities.

Eudora Pro

Version: 3.0.2 (official release)
File name: eup302up.exe
Byte size: 4 473 035
Licence: Free 30-day demo
Web site: http://www.eudora.com/win301b.html
Also available: Windows 3.x version
Note: You must have 3.0 or higher installed.

Eudora Pro is one of the most powerful email applications on the Net. Eudora Pro adds

"and/or" features to filtering, allowing you to specify multiple strings for preferences for filtering. In addition, you can set text files for use as auto-responders, transfer files into preferred directories, play sounds, forward or redirect the message to other users or back to the sender.

Getting serious

Eudora Pro or Pegasus really are the best options for the serious Internet email user. If you must process large amounts of email, and manage mailing lists, the advanced filtering features available to you in the "pro" version of Eudora are definitely worth the price of registration. Eudora tells me that they are currently looking into third-party software that will be able to delete the unwanted email on the server, so you don't have to download it. Eudora offers "and/or" filtering that is not yet available to Pegasus users.

Sigh

Now you have the tools for dealing with spam. You should know, though, that even the best filter won't work 100 percent of the time. Sneaky spammers seem to pop up every day with a new way to get around filters and there are additional things you can do to cut down on spam.

1. Most spammers get your name from your Web site or Usenet postings. Use a separate, dedicated account for business or Web-related purposes, and when posting to the Usenet, place a "spam filter" in your Internet address to fool the spam-bots that search the Usenet for email addresses. In your Usenet reader, where you place your address, place a "fooler" address. For example, instead of using tucows@tucows.com, I put tucows@nospamtucows.com. In your signature file place a notice like so: "To respond to this message please remove the words 'nospam' from my email address."
2. Once you have been spammed, the best approach is for you to notify the spammer that you want no more messages from them—and indicate that any further messages will be considered harassment. In many cases this is sufficient to stop any further messages from that particular individual. Send a note to postmaster@domain.com (where domain.com is the domain name of the spammer).
3. If you have tried everything and can't get the spammer to stop, contact your ISP for help. They will need the full headers of the message because many times these messages are forged. The full headers do contain clues that will help your ISP's system administrator track the true origin of the message.

If you are using Eudora, click on TOOLS, OPTIONS FONTS & DISPLAY and select SHOW ALL HEADERS. Exit and re-enter Eudora. You will notice that the headers (with the to, from, etc., information) are much bigger. Highlight the message, copy it, and paste it into a new mail message and send it to your technical support department.

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Although everyone tries to convince you otherwise, computers are, in fact, complicated! The modern computer is complex because it is a general purpose machine.

If we wanted something that just did one job, such as a Nintendo machine or a microwave oven, no problem Those machines will hardly ever give you any problems But you don't want a single-purpose computer. You want something that can do it all—games, writing, working, playing, video, sound, turning off your house lights, answering the phone taking a fax, checking email, surfing the Web. And so take your all-purpose computer, add a little software or a few cards, and presto ..anything is possible

However, the software and the hardware that you plug into your computer come from all over the world. In fact, the components inside your machine also come from all over the world Consider, too, that anybody with an idea and some capital can come up with something new for you to install to your computer. Each of these new businesses will not only write their own programs but will also try to add new features to their product. They will stretch the limits of any system!

Lastly the operating system itself no longer remains static between upgrades. Every time a new program is installed it analyzes your system—if a file is missing or old - it doesn't ask, it just installs it! As you can see, the whole thing quickly becomes very complicated. This is the reason why anyone who has spent any time on a Windows computer can tell you stories about the trials and tribulations of its use

Salvation comes from a class of software products known as utilities. A more amorphous and ill-defined group of programs you will not find Simply trying to break these various programs into logical groups is an exercise in cyber taxonomy.

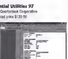
A utilities program loosely means one that will try to do one or more of the following identify software and hardware components, diagnose problems or potential problems, fine tune certain computer functions, and prepare for loss of data. An inexact, but useful division of products can be wrought by categorizing software into multipurpose and single purpose programs.

Multipurpose utilities

Multipurpose utilities combine various functions and features into one product and package it as a life-guard ambulance, shield or some other metaphor to denote the amalgamated product as diagnostic insurance and/or repair oriented There are other products in the market, but only the ones described below arrived in time for my review It could be argued that compression programs file manager shells and other programs are utilities as well but they are not included here. The first group comprises six products. PC Handyman and Norton Utilities from Symantec WinProbe 95 and Essential Utilities from Quarterdeck Corp. FirstAid 97 from CyberMedia, and WinCheckit from TouchStone Software.

Essential Utilities 97

From Quarterdeck Corporation
Estimated price $139 95



Unlike the other programs listed in this section, Essential Utilities 97 is not one program that tries to do it all Essential Utilities 97 is four programs that try to do it all Each program—Fix-It, Remove-It, Partition-It, and Zip-It—are separate programs in every way They come on one CD-ROM and in one box, but they install individually, run individually and act individually As unusual as this is, Essential Utilities 97 is really a good program—er programs.

Fix-It tries to prevent and detect software conflicts. There is an Emergency Recovery function that uses a boot disk to prepare for disaster. There is also a performance monitor that looks at drive bloat and system settings. Overall, this is a decent program

Remove-It is much like other uninstallers in this review. It relies on its sister program Clean Sweep for a database of programs to help identify files associated with various programs This program is sleek and functional.

Zip-It uses the industry standard PKZIP format to compress and uncompress files by dragging and dropping

The best part of this Quarterdeck quartet is Partition-It. Partition-It makes dividing your physical drive into two or more logical drives as painless as it has ever been. If you've ever used the DOS Fdisk command you will know that partitioning your drive can require a lot of copying, deleting and moving. With Partition It, and its Move-It Wizard, partitioning can be safe and easy Essential Utilities 97 is four utilities that add up to one useful product. This is an excellent program for a novice to intermediate user.

PC Handyman

From: Symantec Corporation
Estimated price $69.95

PC Handyman is one of two offerings from Symantec in the utilities market. This program is excellent for what it is. PC Handyman is a friend that helps you understand and solve computer problems. The program's features, below the surface, are similar to many other multipurpose diagnostic programs. There is a GPF (general protection fault) monitor known as CrashGuard, a diagnostic routine that runs behind the scenes, and duplicate file find and anti-virus features as well (PC Handyman's anti-virus feature is based on Norton Anti Virus technology). However, you don't select these and run them. No, you ask PC Handyman questions and he does the work.

For example, you look at the problem screen that shows a computer and its peripherals. You feel that the hard drive might be slowing things down, so you select the hard drive. A series of questions come up, one of which is about speeding up your hard drive. If you choose this, another box opens with, in this case, four options relating to defragmentation, hard-drive settings, optimization and optimizing compressed drives.

Of course, because PC Handyman is squarely aimed at the novice user, selecting one of these options gives a small lesson and explanation about that topic. Lastly, PC Handyman offers to perform the function, if possible. In this case, choosing defragmentation leads to an explanation of the term and process, as well as an offer to explain how to run Microsoft's built-in defragmentation program.

This program also has a live update feature that connects to the Web for a product upgrade and an Anti Freeze program that tries to get crashed programs working again without shutting them down. This didn't work very well for me.

PC Handyman is a question and answer kind of utility that expects you to have a large number of basic questions. If you do, this is an excellent way to learn about, and keep on top of, computer problems with a friend at your side at all times. PC Handyman is suited to a novice user. (On the off chance that you have installed WinFax 8.0 on your computer, you will be unable to install PC Handyman until you perform the live update function in WinFax and download a patch.)

First Aid 97

From: CyberMedia Inc.
Estimated price: $49.95

First Aid 97 is a do-it-all kind of program that will help you fix many types of software-related problems. First Aid comprises three main components: Check Up, Advisor and Emergency.

Check Up runs through your system and gathers information about the way it is set up. Advisor contains a graphic of a computer and its peripherals, like PC Handyman above. By clicking on any object in the picture, such as the monitor, CD-ROM or keyboard, a window opens to list various questions regarding the problem with that particular device.

For example, selecting the hard drive brings up a box with the title "Problems with Hard Drive," below which is the statement, "What is the problem with your hard drive?" An alphabetical list follows with over 20 items from "Disk space and memory" to "View file lists or directories." Selecting one of the items, such as "Disk space and memory" returns another list, this time of about 10 items, from "Low disk space" to "How to adjust the Virtual Memory swap file." Clicking on one of the hot links, such as "How to adjust the Virtual Memory swap file" produces an explanation of how to try and fix the problem, in this case an eight-step procedure for changing virtual memory. The explanation is good with both caution statements and helpful hints.

Emergency is a section that helps you prepare for, or recover from, a serious system failure. Although First Aid can do a lot, it is a software repair program. Like the other programs here a hardware failure will defeat the product. Where First Aid 97 is strong is in its excellent help system. It has a wealth of information and gives great answers to questions, even going to the company Web page if necessary to get an answer.

First Aid 97, by CyberMedia, comes on a CD-ROM and requires a 100 percent IBM-compatible 386 or higher, Windows 95, 8 MB RAM, 17 MB hard-drive space, and a 256 or better monitor; some features require an Internet connection. For an all-round, explanatory program, First Aid 97 is your choice. This program is best suited to a novice user.

WINProbe 95

From: Quarterdeck Corporation
Estimated price: $69.95

WINProbe 95 is the Swiss Army knife of utilities and one of the most comprehensive programs available for Windows 95.

WINProbe 95 focuses on solving Windows 95 problems and boosting PC performance with functions such as Registry Guru, which optimizes and edits the Registry, decreasing Windows start up time, an application control panel, eliminating performance bottlenecks by allowing you to manage the priority of important jobs, and CrashShield, a background protection tool that automatically saves important work from fatal errors, and Windows crash recovery tools for simple recovery of a damaged system. ➤

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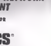
WINProbe 95 also has a system monitor showing system usage resources available and memory Rather like the system monitor built into Windows 95 WINProbe 95's system monitor is an excellent way to learn what is happening on your computer The many other features of this program, from the over 200 hardware diagnostics to the multimedia Knowledgebase offering help for the new and experienced user, make this a real contender for your all purpose utility WINProbe 95 is one of the best comprehensive products in this class and an excellent choice for any user.

Norton Utilities
From Symantec Corporation
Estimated price: $110



The reigning king of PC utilities is Norton Utilities This venerable and comprehensive program can be divided into four categories representing 10 applications

The first category Prevention, is made up of four programs. Image, a backup file of a disk's main file information, Norton Protection, an enhancement to the Recycling Bin that protects files deleted from anywhere inside Windows, System Doctor, a diagnostic and analysis program with recommendation and repair abilities, and, Rescue Disk, a multi disk bootable rescue system

Recovery is made up of two programs. Disk Doctor a very powerful disk diagnostic and repair program on which Norton built its name, and UnErase Wizard, an upgraded unerase application that now recognizes long file names and can use Quick View to see a file before recovery

Optimization combines two programs Speed Disk, a defragmentation program, and a file/directory order program The defragmenter is very visual and simple, while the file order optimization lets you place your most used files and folders at the start of a disk. This gives a slight performance increase.

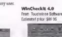
Information is composed of two programs, called System Information and Info Desk. System Information is an extensive list of your system components This program works with Norton Diagnostics and reboots your machine to DOS where it loads a DOS program which polls the system. The use of port loop-backs is supported. The system can even listen for Power On Self Test (POST) codes.

Info Desk is an excellent help and information system There is also Norton Companion which is a very well designed reference which lays out clear and comprehensive descriptions of the terms and components of today's computers.

Norton Companion is almost a product in itself The only place that I could see a weakness in this program is that it doesn't have an uninstaller like many of the others. Thus if you didn't install a program from the Add/Remove Icon in the Control Panel, and the program didn't register itself, you are stuck with manual removal or using another program As well this is not a program for doing extensive filtering and repair of DLLs and other system files For those types of jobs WinCheckIt or WINProbe are better.

Whether you want diagnostics, repair, knowledge or security, Norton Utilities is the best all round utility program on the market. (Congratulations to Symantec for its Answer Genie. This interactive problem solving routine on the company's Web page is the absolute best user support idea to arrive to date If you have a problem with an application, just hope that they have a Answer Genie on their Web page No foolin', this is the future!) Norton Utilities is most appropriate for an intermediate to expert user

WinCheckIt 4.0
From Touchstone Software Corporation
Estimated price: $89 95



WinCheckIt 4 0 is a top-notch, all round, trouble shooting and optimizing program This is a Windows 3.x or 95 program that tries to do everything and comes pretty close to doing it all.

During the collection of system information, WinCheckIt 4 0 opens a DOS box and does its polling from there. This isn't ideal but it is better than simply lifting the information, correct or not, from Windows. Secondly, WinCheckIt 4.0 is well thought-out with logical menus and icons. Buttons have both words and graphics, the Resource Monitor is comely and each part of the interface is aesthetic

All the tests and benchmarks diagnostics and file finders are here You can find IRQ or DLL problems, and run a multimedia test to see if you meet MPC standards (1,2 or 3) There are features to zip and unzip files, tune up your memory, or find any changes made to your system or Windows initialization files (.ini files) as well as autoexec bat and config sys, of course There is also an excellent uninstall program

Aside from automatic notification of any hardware changes since last use, WinCheckIt 4 0 also comes with a very impressive reference set on the CD-ROM All four reference books, from McGraw-Hill, are accessible as Adobe Acrobat files Upgrade or Repair Your PC is practically a bible for DOS machines, while Windows 95 Made Easy DOS Made Easy and Windows 3 1 Made Easy are all three excellent references, especially if you are working on older machines.

Unlike almost every other program here WinCheckIt comes on floppy disk The included CD-ROM contains the reference set

WinCheckIt 4 0 is a very nice program that will give you plenty of information about your machine and about computers in general. This program is best suited to an intermediate or expert user.

Single Purpose Utilities

The second group single-purpose programs, is also comprised of six applications. It includes one hardware diagnostic program Micro-Scope 6.16 from Micro 2000 one software diagnostic program PC Doctor for Windows from Watergate Software, two uninstallers, Uninstaller 4.5 from CyberMedia Inc. and Clean Sweep 3 0 from Quarterdeck Corp, a hard drive organizational tool, Disk Mapper from Micro Logic and a new type of product that uses the Internet to continually check on the availability of software upgrades called Oil Change

Micro-Scope 6.1
From Micro 2000 Corporation
Estimated price $110

Micro-Scope 6.1 is a very specialized tool that can diagnose your IBM-compatible hardware better than any other program in this review The reason for this is that Micro-Scope 6.1 is not a Windows program. It doesn't get its information from Windows or from DOS, it doesn't even get its information from the CMOS settings that are stored on your motherboard Micro 2000 has written its own operating system which loads on boot from your A: drive The program then queries your hardware itself to get accurate first-hand information

Micro-Scope 6.1 is more than just a hardware identification program, though This product is also a true diagnostic program and comes with three loop back connectors to attach to your serial and parallel ports during testing It also comes with a card to install into a completely dead computer to diagnose the problem

By reading signals called POST signals which are part of almost every computer's start up self testing routine the card can pin point problems As well the diagnostic card has a probe which can be used to isolate problems right down to the motherboard component level. It is OS independent and thus will run on a PC with DOS, OS/2 Unix Xenix, or Novell There is even a second POST diagnostic card for IBM MCA (micro-channel) architecture) machines.

The company is a recognized leader in PC diagnostics and works with a large range of CPU and chipset manufacturers PC manufacturers design labs, users and technical support organizations I had only one complaint with this product—it seems somewhat in need of an upgrade The documentation seems out of date for new systems and it incorrectly recognized my 200 MHz MMX as a Pentium 166 This necessitated the removal of the computer case and fan, just to be sure

It is a good idea to remember that Windows based programs may report your processor speed incorrectly if it is incorrect in the CMOS. This program does not do that so it is unfortunate that the program incorrectly rated the processor

If you are truly interested in PC hardware and aren't afraid of plain, clear specs, this is the program for you. Just remember, though, Micro-Scope does not deal in any way with program or operating system problems which are where the majority of consumer-level problems arise This product is suited to an expert or professional user

PC Doctor for Windows
From watergate software inc
Estimated price $69 95

➤

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PC Doctor for Windows is a Plain Jane diagnostic program. After installation, the program polls the system for information. The Diagnostic program will run a series of tests such as those for processor or video. There is a video test and a modem test and icons for Microsoft Defrag and Scandisk, in case you didn't realize those are on your system. There is also an icon for the system editor that you can find in your Window's System folder under sysedit exe.

This is an upgrade to a DOS program that watergate.software has had some success with. They currently have agreements with Fujitsu, Hewlett Packard, Texas Instruments and others to bundle their Windows 95 and NT diagnostic programs with various laptop and desktop computers.

The DOS version of the program is much more powerful because Windows is not blocking the software from talking directly to the hardware. The Windows version includes the DOS version and can be accessed from within the program. The software exits Windows and polls your computer. This way of analyzing your system is a little ugly but much more accurate than Windows programs.

The product does not try to do anything about what it finds—it is a reporting program and because it can exit to DOS and run a DOS version, it gets good numbers. There is even a section which will conduct over a dozen Pentium processor tests such as write-back, branch prediction and floating point operations. PC Doctor for Windows is a decent system analysis programs. PC Doctor for DOS is a small but good one. This product would be appropriate for an intermediate user.

Uninstaller 4.5

From CyberMedia Inc

Estimated price $48 95

Uninstaller 4.5 is the newest version of this very popular uninstaller. This incarnation comes in a box that looks just like a box of Tide laundry detergent. The product is advertised as something to clean your computer, and as a program which is safe.

Uninstallers have been around for a few years. Windows 95 has its own built-in uninstall program but it only works if you use the Add/Remove Programs option in the Control Panel for installation. Uninstaller 4.5 can do much more.

Application Cleanup guides you through the process of deleting, moving, archiving or transporting to another computer any application. File Cleanup helps locate and remove unwanted or unnecessary files. The program seeks out these files and then codes them with a green, yellow or red dot. Green files are not dangerous to delete, yellow are and red can't be deleted unless you go to the program's options menu and turn off the delete guard. This is a good thing.

These programs have a reputation for causing problems because many users have wrought havoc on their system files using them. Uninstaller 4 5 is very good at cautioning the user. I, who have some experience with these programs, strongly suggest you heed the recommendations of these programs and be very careful!

Uninstaller 4 5 can do much more than uninstall a program or file. It will move an application from one logical or physical drive to another and reset all references to the old location. It can compress and archive seldom used programs. It will seeks out disconnected shell items and remove them. Other features include cleaning up the Registry, removing Windows 3 1, and getting rid of all those Internet files in your cache. This is a safe program that will please the novice to intermediate user.

Clean Sweep 3.0

From Quarterdeck Corporation

Estimated price $59 95

Clean Sweep 3 0 from Quarterdeck Corporation is a 32-bit Windows 95 or NT program that has been upgraded from version 2 0 with greater protection against accidental file deletion, an ability to automatically update from the Internet, and an enhanced application knowledge base.

Like the other uninstaller reviewed above, Clean Sweep 3 0 can remove, move, transport, delete or archive a program, file or series of programs or files. Where Clean Sweep has an edge is in its more aggressive identification of redundancy. This program will indicate duplicate files, redundant DLLs orphaned files and seldom used files for deletion. This is an advantage to users that keep a complete back up at all times or are very knowledgeable about their system.

However it could be a recipe for disaster for the average user and this is the reason why I did not recommend the product in my last review. However, version 3 has paid particular attention to this issue and increased security with its automatic safety feature Safety Sweep. This program automatically compresses and backs up files deleted. Yes, this means that the deleted files still take up a bit of your hard drive space but it also means you are more likely to be able to restore files that should not have been removed. This is more common than you might think and not easily avoided. For example, a duplicate file may not always be removed.

Clean Sweep also has a number of other related abilities such as the Registry Genie, the Backup Wizard and Usage Watch. This program is a good value for the money. Clean Sweep is a powerful program that can bite you if you are not careful but is perfect for the intermediate and advanced user.

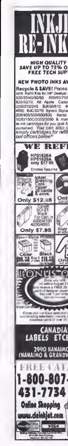
Oil Change

From CyberMedia Inc

Estimated price $49 95

Rarely do we see a brand new type of program, but here it is. Oil Change updates your software automatically using the Internet. Of course, you have to have Internet access and some software but other than that you are set.

The idea is this: new software and hardware updates and drivers are released on the Internet all the time. You and I don't have the time to track things like the most current dri-



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ver for our video card or the latest add-on for our browser. So Oil Change does it Here is how it works

When you install the program, it searches your hard drive for programs and registers them in its database. You enter your registration information and a password and the program signs on to the Oil Change Web page to register you and your programs The list of programs is run against a list of the most current patches, upgrades and drives for your configuration and the software offers to let you download them That's it.

The good news is it is a good idea and I found add-ons and patches that I was unaware of. The bad news is that too few companies have come onboard and thus many programs do not return any additional upgrades

This is a product that will either become a popular and useful program with many companies signing on, or be subsumed by someone and become an Internet service Oil Change would be good for a novice user.

Disk Mapper
From Micro Logic Corp
Estimated price $39 95

Disk Mapper is a tiny program with a novel idea that will find some proponents. Disk Mapper scans your drives and represents the information graphically and proportionally

Thus, the various colored boxes within other boxes represent the directories, folders and files on your drive. As you would expect on a Windows computer the largest box is Windows, after which another box might be Corel Word Perfect Suite 8, itself filled with many boxes each in correct relation to all the other boxes.

Thus it is easy to see where your space is going. Clicking on a big box will zoom in and display the small files contained within the directory Hold the mouse over a box and the file s size appears at the bottom of the screen. There are a few other abilities of this little program but basically that is it.

Disk Mapper was the only program which did not come with a program to uninstall itself Somewhat of a novelty but perhaps useful Disk Mapper might appeal to a new user. ◻

Contacts

CyberMedia Inc., 2001-3000 Ocean Park Blvd., Santa Monica, CA, 90406. Tel 310-581-4700
Web site http://www.cybermedia.com

Micro Logic Corp PO Box 70 Hackensack, NJ, 07602. Web site. http://www.miclog com

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Info-packed reference a must for Java programmers

New edition of bestseller covers recent advances

BY KEITH SCHENGILI-ROBERTS

**Java in a Nutshell, 2nd Edition:
A Desktop Quick Reference
for Java Programmers**
Author David Flanagan
Publisher O'Reilly & Associates
Price $29.95
ISBN 1-56592 262 X
Softcover 628 pages 1997

If you've been following the break-necked pace of Java programming over the past year, you will have seen many changes in the industry. The typical joke is that Java ages in dog-years, so by this point most of the Java programming books that came out during the initial flurry of interest in Java are way out of date.

One of the few exceptions is *Java in a Nutshell* from O'Reilly and Associates which detailed everything programmers needed to know in a simple, easy-to-understand book. Instead of being dog-tired this book was more likely to be dog-eared on a programmer's shelf.

This bestselling book has just been updated to cover the new Java Development Kit 1 1 Application Programming Interface. This API is a great improvement over the old model, including such things as a new (and easier-to-use) event-handling model and a more robust architecture. And—finally—you are able to print from Java! Since this API is now setting the standard for Java programming, if you're a Java programmer you will need to bone up on this new standard.

There's a lot of information here that has been held over from the previous release, including an updated section on how Java differs from C programming language (handy for those who already have some programming knowledge) and how classes and objects work in Java. There's a lot of new material here also, including a section on what is new in the JDK 1 1, and practical examples of how the new event model can be used in programs. There's also an extensive section on Java Beans, what they are, how you can create them and how they can be used when developing new Java programs.

This book is fine in many ways, and while it may seem strange to mention it, the biggest disappointment of this book is that unlike its predecessor, it does not use the stay-flat binding process. Apparently the new edition is about 20 or so pages too big for O'Reilly's printing presses to produce an effective stay-flat binding. All I can say to O'Reilly is: get a new press! This feature of the previous book was very handy as you could keep the book open to the appropriate page on your desk while programming.

The reference value of this book should not be underestimated. It contains a complete quick reference for all of the classes, methods, and variables in the core Java 1 1 API, and cross-reference material is now provided within each referencing page. So while there's plenty of good reading in this book to keep the budding Java programmer busy, you can expect that much of this book's working life will be spent by the computer screen as the programmer looks up the various properties of selected Java classes.

If you are already a Java programmer or are looking to switch, get a copy of this book. If you are serious about Java and haven't already bought a copy, expect *Java in a Nutshell* to appear by your computer sometime in your future.

As Java matures as a programming language and it comes into greater use both on the World Wide Web and on the corporate desktop, Java is proving not to be a fad. ❑

Rating:
Information content ****1/2
Readability: ****
Intended for: Intermediate-Expert
Overall Rating: ****

Contact: O'Reilly & Associates Tel 800-998-9938.
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The future according to Dilbert

BY KEITH SCHENGILI-ROBERTS

**The Dilbert Future:
Thriving on Stupidity
in the 21st Century**
Author Scott Adams
Publisher Harper Business
Price $35 50
ISBN 0-88730 866-X
Hardcover 258 pages 1997

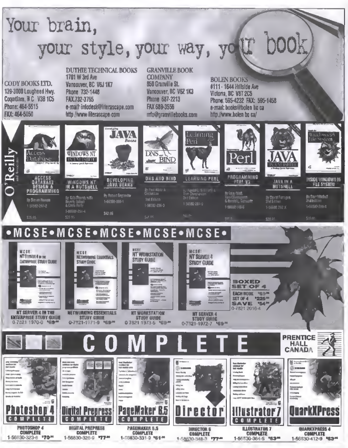
Over the last couple of years, Scott Adams and his comic strip *Dilbert* have become extremely popular. There must be few workplaces in North America where co-workers haven't gotten together to snigger and possibly commiserate over the daily absurdities of dealing with office life and with management.

In addition to the comic strip Adams has taken to writing books that poke some much-needed fun at the current trends in such things as management styles and fads. The results can be brilliant, as was the case with *The Dilbert Principle* where the basic tenant was people rise to the level of their incompetence which is inevitably in management. In *The Dilbert Future* Adams takes a similar stab at the many end-of-the-millenium futurists who are all publishing their predictions these days. While Adams's predictions are certainly funnier than most, *The Dilbert Future* is disjointed, and simply not as good as *The Dilbert Principle*.

Most futurists look at how technology will affect the future. Some people look forward to seeing a *Star Trek* like future, where technology takes us to a utopia among the stars. Well forget it, 'cause it ain't going to happen that way according to Adams. Some futurists look at such things as economic trends, technological advances and population statistics that will change the way we live. Adams instead takes a look at how human greed, stupidity, and horniness will shape the future.

In this book, Adams follows in the footsteps of other great futurists, i.e., sitting at home making stuff up that can't be proven wrong for many years. And he knows it (and admits it). From this vantage point he offers a humorous view of our future to come, where great technological advances are tripped up by such things as poor technological design and the underachieving users who end up trying to figure out how they can get their new voice-activated toasters to work.

Continued on page **95**



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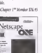

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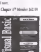

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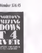

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Chapters

Great Books Are Just The Beginning

Future according to Dilbert

Continued from page **92**

As an example, Adams takes a look at the development and deployment of ISDN lines in corporations For those who don't know, ISDN is a digital telephony system that brings high-bandwidth connections to the office and is increasingly being installed in the homes of individual Internet users who want faster access to the Internet

Despite the shiny gleam of newness surrounding ISDN, it has in fact been around for at least a decade. Before Adams produced his comic strip, he worked at Pacific Bell where he promoted ISDN to large corporations He even made technical recommendations on the ISDN standard None of this helped the end user much, who faced myriad technical choices they couldn't possibly know how to deal with once they purchased the system. Television cable companies are now trying to provide an alternative through the use of cable modems, which provide even thicker bandwidth So cable will take over, right? Not according to Adams

Despite its problems, ISDN has had a long time to work out the many bugs it has, whereas the cable operators have only begun the process Sure, cable may take over eventually, but expect a long period where cable company installers scratch their collective heads over the manuals for installing cable data lines into the home and office Also expect a lot of telephone company officials to laugh and point at said cable operators, realizing that they've already gone through such technological growing pains years earlier.

This book is certainly better than Adam's last book, *Dogbert's Top Secret Management Handbook* which seemed like a rush job and was basically a rehash of *The Dilbert Principle* told from Dilbert's Machiavellian pet Dogbert's point of view Unlike *The Dilbert Principle* which proposed solutions to the problems of corporate culture *Dogbert's Top Secret Management Handbook* essentially made fun of the idiots in management. It was funny but somehow kind of tired and forced *The Dilbert Future* falls somewhere between its two immediate predecessors

While there's a lot of funny stuff in this book, Adams does not weave it all together into a cohesive whole *The Dilbert Principle* actually proposes solutions to some of the problems it discusses, while *The Dilbert Future* just seems to be a collection of essays tied weakly around a strong premise It also has the feeling of being a bit "rushed," and while it is often hilarious, makes for a disappointing read if you have read *The Dilbert Principle*.

In comparison to *The Dilbert Principle, The Dilbert Future* comes off the weaker of the two books. Don't get me wrong—it is a fun read, certainly much more fun than any other book about the "future," and you are guaranteed some laughs if you pick it up There are some good insights here too, but don't expect *The Dilbert Future* to figure much in the way you think about times to come ❑

Rating

Information content. ***

Readability *****

Intended for: All audiences with a sense of humor

Overall Rating: ***1/2

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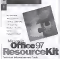

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Weaving your own Web site: Part XXIII

HTML Help

BY KEITH SCHENGILI-ROBERTS

As hypertext markup language (HTML) becomes more pervasive, it is beginning to move from the Web to the desktop. Increasingly, more uses are being devised for it and soon you can expect HTML to be present as much as on your desktop as on the Web. In this article, we'll begin to look at how HTML is migrating to the desktop in one form or another.

One place you can expect to see a change is in online help systems—the type of information you get from a program when you click the Help menu. Online help typically provides information on how to use the program, points out tips, tricks and other features, and usually provides an index to enable a user to look up information quickly and easily.

HTML seems like an ideal medium for producing online help. It is designed to be hyperlinked, and this is a feature used in all online help systems to easily move from one related topic to another. Generally, this also means links can be located both on the local hard drive and on the Web, where information can be continually updated. HTML-based help can also present information in multiple frames, display images, and with image-maps can produce a version of context-sensitive help.

This impeding change to HTML-based help systems also comes at a time when more software manufacturers are trying to reduce costs by eliminating printed manuals. Increasingly, online help is expected to carry more of the burden for providing help to end-users of the program.

There are currently plans from several software vendors to meet the challenges of producing an HTML-based online help system that retains as many features as possible that are already present in current help systems, and leverages the benefits inherent in HTML to the best possible effect.

Microsoft's HTML Help

Microsoft has ambitious plans for its HTML-based online help system, called HTML Help. Microsoft's WinHelp is the current leader and de-facto standard for online help systems for 16- and 32-bit Windows systems. If you've used a Windows program and you've used online help, you've used WinHelp. It was something of a shock to the help authoring community when Microsoft announced it would be switching to an HTML based online help system shortly after setting the standard for Windows 95 style online help. However, because of wide-spread industry support for WinHelp, most people's bets are on Microsoft to set the standards for HTML-based online help.

HTML Help consists of many different components that work together, and it relies broadly upon the technologies incorporated into Internet Explorer 3.0. HTML Help consists of five main components: the HTML Help ActiveX control, a layout engine, the HTML Help window, compressed HTML and, for help authors, the Microsoft HTML Help Workshop.

Web pages follow the standard format—no special tags or attributes need to be added. Using the Microsoft HTML Help Workshop, the help author then needs to create a project file, index and table of contents files. Constructing these individual files is handled by Wizards from within the Microsoft HTML Help Workshop. It is also used to add ActiveX controls or other functionality to specific topics.

The ActiveX control is the heart of the system. It contains all of the extra functionality to make this a robust online help system, including the ability to add pop up help, indexing capabilities and many other functions. It provides a navigational user interface containing the table of contents, index and related functions. The resulting HTML files are then compressed, and can be tested.

The interesting thing about the ActiveX control to regular Web authors is that it is designed to be used anywhere—it can be used on the Web as well as in the online help system. Since HTML Help is likely to become pervasive, the ActiveX control will likely already be on many (Windows) computers. This means the Web author merely has to reference the control on a Web page, and chances are the user will already have it, so they won't have to download anything. The Web author can design a Web site to make use of the control, adding pop-up help menus to certain areas of a Web site to aid the user in their navigation around a site. If you are interested in pursuing this, you can get more information from Microsoft's Web site at http://www.microsoft.com/workshop/author/htmlhelp/

Netscape's NetHelp

Not to be outdone by Microsoft, Netscape has its own plan for creating HTML-based online help. NetHelp, designed for Netscape Navigator 3.0 or greater, is an alternate context-sensitive HTML-based online help system. Unlike Microsoft's HTML Help, which, at the moment, is restricted solely to Windows 95/NT, Netscape's scheme will work on any of several operating systems: Macintosh, Unix, or Windows.

The main idea behind NetHelp is that since a majority of Web surfers already have Netscape Navigator, why not use it as the medium to deliver online help to these users? By choosing Netscape Navigator the help

Continued on page 103

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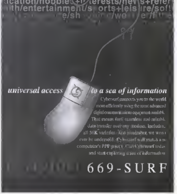

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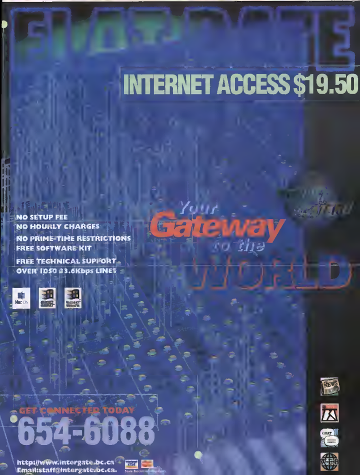

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Some Restrictions [illegible]

Slow and steady:

Virtual PC a technological marvel

BY GRAEME BENNETT

Virtual PC
From: Connectix
Price: US$189 (US$149 street) with Windows 3.1/95
Pros: Solid PC emulation for Power Macintosh computers allows Macs to run DOS, Windows 3.1, Windows 95, Windows NT, Linux, OpenStep, etc. Software supports sound, printing, networks, modems, CD-ROM,and other common PC peripherals (Connectix has details.)
Cons: Speed depends on Macintosh model. Performance on a mid-range Power Mac is subjectively equivalent to that of a 486-based PC

Several years ago, *The Computer Paper* ran a story on Insignia Solutions' SoftPC in which we suggested that Mac users could do an end run around corporate buying policies that permitted only DOS-compatible PCs to be purchased. With the software acting as a Trojan Horse of sorts, cunning Mac users could keep their beloved machines and still interoperate with the PC world.

The trouble was that SoftPC, and even the subsequently improved SoftWindows, ran too slowly to really use unless you were truly desperate.

The good news (for everyone except Insignia, that is) is that Virtual PC (VPC) is a substantial improvement both in compatibility and performance. Compatibility is truly excellent. VPC doesn't support microphone input, but this is the only hardware incompatibility we've observed running DOS/Windows software. We installed and ran MS-DOS 6.22, Windows 3.1 and Windows NT 4.0. All three worked without a hitch. Windows NT even auto-detected our Macintosh's built-in network adapter and informed us that it was a DECnet Ethernet card—a clever bit of emulation. Similarly, the Mac's video adapter is emulated as an S3 video card, while the Mac's sound mimics a Sound Blaster Pro.

The biggest problem for most users will be speed—or the lack thereof. It takes a mighty Macintosh to deliver the performance of even a low-end Pentium, and our 80 MHz PowerMac 8100 ran Windows NT so slowly that it was like watching the system run in slow motion. Buttons took several seconds just to register a click, and window redraws were like pouring molasses. Not surprisingly, Connectix recommends a faster Power Mac as a minimum requirement for running this OS.

As a benchmark comparison on Ric Ford's Macintouch Web site notes, "the most glaring shortfall of both SoftWindows and VirtualPC seems to be their graphics speeds."

Interestingly, Connectix says VPC emulates the MMX instructions of the newest Intel chips. It also pulls Mac users into the often unsavory world of PC technicalities (VPC emulates the well-known "MR BIOS" brand of Basic Input/Output System) and hardware hassles. Under Windows 3.1, for example, our CD-ROM drive didn't work, as that OS lacked a CD-ROM driver. Upgrading to Windows 95 solved that problem, but uncovered another issue that many users of low-end PCs have discovered. Windows 95 is noticeably slower than its predecessors on low-end systems.

Our tests of DOS and Windows 3.1 were much more satisfactory. Windows 3.1's performance was quite adequate on our test system, although the CD-ROM drive did not work until we installed the CD-ROM driver included in the Virtual PC package (see below) and we have no qualms in recommending Virtual PC for any Power Mac user who needs occasional access to software tools that run only on those operating systems. Although Windows 95 includes built-in support for CDs, a CD-ROM driver for DOS/Windows 3.x is also included on one of the two CD-ROMs in the Win95 version of Virtual PC.

Windows 95, which we think most Mac users users will find the most palatable of Microsoft's operating system (OS) offerings, we'd recommend only to those with RAM laden 604- and 604e-based Macs, while Windows NT and other heavy-duty OSes are, we think, best left to those with the most powerful hardware or exceptional patience.

Beating the system

Here are a few reasons (paraphrased from an April '93 *TCP* article) why Mac users might want to run a PC emulator:

1. A required application is only available for DOS, Windows or another PC-based operating system.
2. The user wishes to learn (or teach) one or more PC applications.
3. The user wishes to easily rename a large number of files—an easy task using DOS.

4. The user wishes to access data on a PC network. (Note: This is possible using Mac-based solutions such as Miramar's MacLAN Connect, CopsTalk, DAVE, etc.)
5. Corporate purchase requirements stipulate all computers must be IBM compatible and/or be capable of running Microsoft Windows.
6. The user has switched from a PC to a Macintosh but has a considerable investment in DOS or Windows software.
7. Web authors needing to view their HTML creations on both platforms (a must!) can use VPC to run their choice of PC platform browsers.

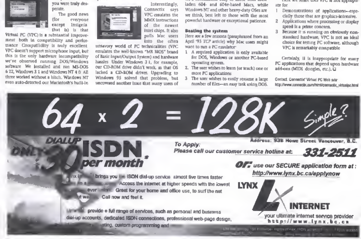
There are undoubtedly other reasons, but these, I suspect, are the main ones. All are worthwhile, although performance considerations make "non-mission-critical" uses the most viable ones.

Here are some uses VPC is not appropriate for:

1. Demonstrations of applications—especially those that are graphics-intensive.
2. Applications where processing or display speed is a prime concern.
3. Because it is running on obviously non-standard hardware, VPC is not an ideal choice for testing PC software, although VPC is remarkably compatible.

Certainly, it is inappropriate for many PC applications that depend upon hardware add-ons (MIDI dongles, etc.). ☐

Contact: Connectix' Virtual PC Web site: http://www.connectix.com/html/connectix_virtualpc.html



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TrueDoc tools and typeface tricks

New features enable dynamic font support in Netscape Communicator beta 4

BY GRAEME BENNETT

As many Web surfers know, each version of Netscape's browser adds new features. With the beta 4 version of Netscape Communicator (available for download from http://www.netscape.com), the company has added support for an interesting font embedding technology called TrueDoc With TrueDoc, you can embed font data in your Web pages so that people visiting your Web site will see the typefaces exactly as you intended As this article went to press, TrueDoc functionality was only available in the Windows version of Netscape Communicator but, ironically, the first tool for creating Web pages with embedded TrueDoc fonts was for the Mac! Fortunately, the situation has evened out and tools are now available for both Mac and Windows 95/NT machines.

On its Web site, Netscape has several demos that show how Bitstream's TrueDoc technology lets users view specific fonts and font effects on the Internet or an intranet. Other pages at Netscape's site show off several other intriguing Communicator features, including examples of Dynamic HTML, drag-and-drop Web page objects, Cascading Style Sheets and more (check out http://home.netscape.com/flash1/comprod/products/communicator/index.html).

According to information on Netscape's demo pages, designers can include font files with HTML documents or messages so that the page appears exactly as the designer intended. On our Windows test system, screen fonts were all anti-aliased and took only seconds to display. (And you don't need a separate viewer plug-in, as you currently do for Acrobat files.) And of course font files can be restricted for use on a particular site.

The current Netscape Communicator Preview Release includes viewing support under Windows 95 and NT, Solaris, and IRIX for dynamic fonts (Netscape says Macintosh, Windows 3 1, and additional Unix support will follow in a future preview release) The company says future preview releases will also include a Composer plug-in for packaging fonts.

Bitstream sent some interesting info on the subject. According to spokesperson Stefan Wennik, "the list of who is currently working with TrueDoc is lo-o-o-o-e-o-ng. The list of products that are actually available is short."

Germany's HexMac, Wennik says, is the only company currently shipping an HTML-based product for recording TrueDoc fonts into documents. Its product, called Typograph, is available as a plug-in for BBEdit from Bare Bones Software Inc (go to http://www.barebones.com) or as a standalone application for Macintosh or Windows 95/NT All versions work with any HTML file and sell for US$149 (The free downloadable version at http://www.hexmac.com is time-limited)

TrueDoc, says Wennik, is also currently built into some other Internet and non-Internet products, such as Macromedia Shockwave for Freehand 7, and most of Corel's currently shipping or about-to-ship products. It is also being used by FutureTense for their Texture product and SoftPress for Uniquorn These are all shipping now Here is a quick list of other companies who have the code and are implementing it into their products:

- Astrobyte's BeyondPress
- Bare Bones' Software's BBEdit
- Boomerang's Web Publisher
- Computer Associates' Jasmine
- Digiflyer Europe's Digiflyer
- InfoAccess Inc 's HTML Transit and Transit Central
- MySoftware Company's MyInternet-BusinessPage

Continued on page ***102***

Excite upgrades search engine (NB)—Finding what you want on the Web could be easier thanks to new capabilities at the Excite Web site. The company [illegible] using boolean [illegible] also includes the ability to specify [illegible] must or must not include a related [illegible]. Users can also specify how many [illegible] are returned and how they are [illegible]

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TrueDoc tools

Continued from page 100

- Pacifica Internet Authoring Tools PersonalWebPageDesigner
- Papillon System Ltd's ATHENS
- RMX Technologies Inc
- Sausage Software Ltd's HotDog
- SoftQuad's HoTMetaL Pro and HoTMetaL intranet Publisher (H i P)
- TextCenter's Fill-In
- TLCO Software's Web Factory

Also Bitstream just did a deal with Intervista, which will reportedly be building it into its virtual reality modeling language (VRML) browser and tools so that virtual reality projects created with their tools will be able to have access to high-quality scalable fonts.

TrueDoc is also being built directly into a lot of hardware as the native font-scaling engine. For example, it is the font engine for Oracle's Network Computer. Bitstream says it expects a lot more of these to become available in the near future. "This is really important for Web content creators because in the near future, people will be using this kind of hardware for viewing Web content," Wennik maintains. "With TrueDoc built in, the fonts will image perfectly even on low resolution screens [like TV screens, etc]." Visit Bitstream Inc at http://www.bitstream.com for more information.

While we were looking for more readily available solutions, we stumbled across an interesting item on Adobe's PDF fonts. The Fonts on the Internet page (http://www.letter.com/LTR_BmapLong.html) notes: "Adobe's PDF files can contain the complete font in PostScript form when the author wants it. The Type1 data can be located quite easily and extracted from the file. On some platforms it is not even necessary to open an application." Apparently, PDF is an unintentional acronym for public domain fonts. ❑

Gateway 2000 goes network centric • South Dakota-based Gateway 2000 has announced a program to supply what it describes as "a totally new type of PC targeted at organizational users."

The new Gateway E-1000 is intended as a sub-$1,300 networked business computer. The E-1000 is based on the Intel 166 MHz chip with 16 MB RAM, a 2 GB hard drive, a 3.5 inch floppy drive, 2 MB video RAM, 16-bit audio, and an integrated 10/100 Ethernet card, and a 15-inch monitor.

On the same day as the Compaq's launch of its Network PC, Gateway 2000 announced the E-1000N, which ranks with the Compaq Deskpro 4000 as one of the earliest Network PC-compliant computers. According to Mike Aymar, Intel vice president and general manager of the desktop products group, "One of the strengths of the Net PC system design guidelines is its comprehensive approach to manageability. Gateway's E-1000N, by taking advantage of those guidelines, will provide customers with a system designed specifically for centralized administration while still delivering the performance and flexibility they expect from PCs."

Contact: Gateway 2000, Tel 800-846-2000, or 605-232 2000.

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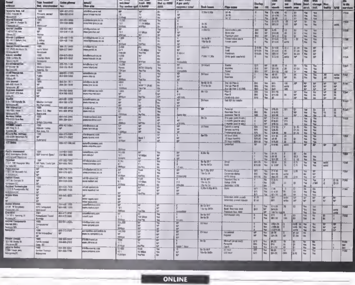

ONLINE

Weaving your own Web site

Continued from page **97**

author does not have to license a help viewer program that would have to be shipped along with its product, and it could access the HTML extensions, Java, JavaScript and plug-ins used by Navigator.

NetHelp uses frames to create a separate window consisting of three elements: the main frame, a navigational interface and an area that displays the requested information. In effect, a mini-browser is created, and users browse for the help they need.

Here's a brief example, based on info derived from the NetHelp SDK (which can be found at http://home.netscape.com/eng/help/index.html). First, you need a frameset file to holds the files that display the navigation bar and the help topic. It is a very simple frame file consisting of the following code.

```
<FRAMESET ROWS="82,*">
<FRAME SRC="navbar.html" SCROLLING=no MARGINWIDTH=0
MARGINHEIGHT=0 NAME="buttons">
<FRAME SRC="about:blank" NAME="topic">
</FRAMESET>
```

This creates two frames and loads their respective content.

The navigational frame at the top contains several GIF images of navigational buttons and points to JavaScript code to make them functional as shown in the following example.

```
<TABLE WIDTH=100%>
<TR><TD ALIGN="left" VALIGN="top">
<A    HREF="contents.html"    TARGET="topic"><IMG
SRC="images/contents.gif"    BORDER=0    HEIGHT=37
WIDTH=44></A>
<A    HREF="index.html"    TARGET="topic"><IMG
SRC="images/index1.gif" BORDER=0 HEIGHT=37 WIDTH=44></A>
<A  HREF="javascript:parent.frames[1].history.go(-1)"><IMG
SRC="images/back1.gif" BORDER=0 HEIGHT=37 WIDTH=44></A>
<A  HREF="javascript:parent.frames[1].history.go(1)"><IMG
SRC="images/forward1.gif"    BORDER=0    HEIGHT=37
WIDTH=44></A>
</TD>
<TD ALIGN="right" VALIGN="top">
<A HREF="javascript:top.close()"><IMG SRC="images/exit1.gif"
BORDER=0></A>
</TD>
</TR>
</TABLE>
```

The interesting aspect of this code is the embedded JavaScript code, which calls a history list when the Back button is clicked (using <A HREF="javascript:parent.frames[1].history.go(-1)">), causing a previously viewed help page to be loaded in the lower frame. Similarly, clicking on the Forward button causes the next topic in the history list to be loaded into the lower frame. When the user wants to exit the help window, JavaScript is called again (<A HREF="javascript:top.close()">) to close the window.

Finally, create an HTML file that contains the requested topic. It's simple really. The only other tricky bit is the method used to hook up a particular requested help topic within the program itself, but this is up to the program developer. If you are interested in finding out more about this system, download the NetHelp SDK for yourself.

NetHelp does have a number of features to recommend itself, though. For those writers already familiar with Netscape's brand of HTML, this help system requires little new knowledge. While it is possible to include context-sensitive help with NetHelp, it does not appear to include any indexing capabilities, pop-up menus or other features commonly seen in other online help systems. However, its relative simplicity can be an asset in some circumstances, and it is also important to keep in mind that the design and features of NetHelp may change by the time it gets to final release. ❑

Keith Schengili-Roberts welcomes any comments, suggestions or HTML tips and tricks you may have. You can email him at: kschengi@interlog.com. His book on HTML, *The Advanced HTML Companion* (ISBN 0-12-623540-6), is available in bookstores. Previous articles in the series can be found at *The Computer Paper* Web site at: http://tcp.ca/

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Hit the road, learn some math

BY JEAN ALLEN-IKESON

Math for the Real World
From: Davidson
Price: $40

How do you reinvent the wheel to run like a wheel, but not look like the same old wheel? You develop a new math program for 10-year-olds and up and call it Math for the Real World.

Davidson's new offering, which runs on Windows 3.1/95 or Macintosh, blends math into the context of creating a rock video. It does this so smoothly your kids will keep on rocking through over 4,000 word and pattern problems.

To begin, you sign a contract to go on tour. Because the music company is not endowed with big bucks, you must earn money while traveling on a tour doing music "gigs" of 10 cities in the U.S.A. Stops must be made at Edna's Cafe to replenish your food meter. You fill up trays of food chosen from the priced menu and balance the budget for each tray.

But watch out! The old van needs a drink at Irving's gas bar. Ignore the low warning and you may wind up being stranded in the desert without enough money to complete your video.

That project requires 10 scenes, each costing $20.00. After each "gig," if you have enough for a scene (earned by working real

Continued on page 108

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BY GORDON GOBLE

For some, a day without golf is like a day without sunshine. But for those days when there is no sunshine there's always computer golf, an exercise that cares not about the weather. We'll tee off on three recent releases and find out who really has the low score.

Jack Nicklaus 4
From Accolade
Street price $55
System requirements Pentium 90 16 MB RAM, 30 MB disk space SVGA, 2x CD-ROM drive, Windows 95, Windows-compatible sound card

Like Electronic Arts' PGA Pro, the Jack Nicklaus line is a veteran player in the computer golfing software category, and a highly regarded veteran it is But with Jack Nicklaus 4 (JN4) Accolade has added some grand new elements to solidify this game's place at or near the head of the class Sure it plays great and looks fantastic, but the darn thing lets you build your own course too What isn't there to like?

Like a game within a game, the graphical JN4 "course architect" allows you to design your own 18-hole course, including everything from elevation changes to length and type of hole, hazards and overall layout. Adding a dogleg is as easy as picking up a fairway "boundary point" and moving it. Shape a green, drop in a bunker, add hills, trees, boulders, rocks, and even alter the sky Though it'll take some time to conjure up your first few holes, with a little patience and a lot of ingenuity you may never need to buy an add-on course again!

Speaking of pre-designed courses, JN4 isn't shy in that department either. You'll find replicas of Muirfield Village, Colleton River Plantation, Country Club of the South, Winding Springs, and the hazard-filled Cabo del Sol, each lavishly depicted and looking like you'd stepped onto the real fairway Screen redraws do take some time on RAM-challenged machines, but the final results compare favorably even with the genre's leading title LINKS LS

Otherwise Nicklaus plays like a good golf game should with realistic feel and ball action, a myriad of easily designated shot selections exceptional audio variable weather and lots of options. You'll find numerous play styles, including Practice Match High Score Million Dollar Skins Game, Sudden Death, and even Bingo, Bango, Bongo New for JN4, multi-player support is offered via a local area network (LAN), modem-to-modem or Internet and that opens up some very interesting options.

I found gameplay views to be exceptionally good, with cross sections aerial cams, and a near infinite number of shot perspectives and replays Did I miss anything? Well, maybe I did, but there's so much that space restrictions preclude adequate raving Suffice to say, Jack Nicklaus 4 will disappoint no one.

PGA Tour Pro
From: Electronic Arts
Street price. $50
System requirements: Pentium 90 16 MB RAM 80 MB disk space high-color 1 MB Direct Draw 3 0-compatible video card 4x CD-ROM drive, Windows 95, DirectX 3 0-compatible sound card.

In its PGA Tour series, Electronic Arts has had a habit of turning out some of the most thorough golf titles in existence With tons of play options and a smart TV-like presentation, PGA Tour Pro is no different. Its single flaw (if you can call it that) is that EA hasn't done much to improve on the previous installment, a questionable call in this suddenly hot genre

Nevertheless, if it's an "all things to all people" golf game you want, PGA Pro complies. As is the norm for the PGA Tour line, several scoring options (Practice, Skins Stroke, Shoot-Out and Tournament) are supported, as are four skill levels, each teamed with club, shaft, tee distance and a bevy of other variables Fourteen touring pro animations are ready to kick your sorry butt, including heavy hitters like Jeff Sluman, Brad Faxon and Lee Janzen. If computer-governed pros aren't your style, grab one to three more humans and duke it out on a single computer, set up a two-player head-to-head modem game or a four-person LAN or Internet contest

Three courses are packaged with the game,

Continued on page **109**

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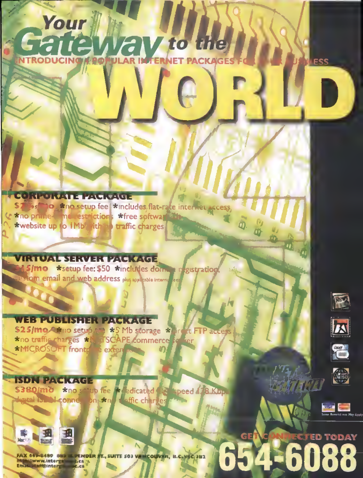

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Hit the road,learn math

Continued from page **104**

life word problems), the studio becomes available There is an ample choice of songs for each video along with a long list of backgrounds and foreground animation choices

Each animation can be repeated or just run once during a scene or a delay may be added so that a single animation comes in up to seven seconds into the scene and runs for example, only once Make a car appear and speed down a road on the track or for multiple animations click on dolphins several times to create a group leaping and diving.

Then try out the scene or scenes as a group to admire your production. It's all guaranteed to make your kids laugh and want to go back on the road to earn more dough to make more scenes

Equally as good is the way math problems are integrated and related to the "tour" and making of the video: hence the title Math for the Real World. Answer a problem correctly and increase your cash, on the second try receive only half as much for a correct answer; on the third try, you lose as much for an incorrect answer as an initial correct answer gains So the incentive is to read the questions carefully A calculator appears by clicking on its icon in the corner of the screen if complex calculations are necessary

Some questions are simple enough for an eight year-old to answer, but others can require the calculator for most kids. Questions include logic, fractions, decimals and percentages, time, money (in U.S. denominations dollar bills, not loonies and twoonies), charts and maps, volume (cups and ounces, not litres and millilitres), weight, measurement (again non-metric) and patterns using musical notes. This translates into calculating the distance to the next concert, dividing dinner bills, comparing costs of equipment, the size of drum case needed or calculating time differences

A reference library is available to explain how to solve each problem With math practice makes perfect. Word problems seem to offer more difficulty because they must be read, analyzed carefully and then converted to traditional mathematical or arithmetic format to reach the correct solution But this helps kids get the idea that math is just a language that translates real world problems into a configuration that easily provides solutions to everyday life, even the cool ones needed by hip band members.

So on this score, Davidson has a winner in Math for the Real World Like other software producers, such as Sanctuary Woods with Major League Math, Davidson has moved away from the kill-and-drill style programs

For home use, it provides enough fun and-games to keep kids playing and learning For school use, the videos eat up valuable class time but would be appropriate for "enrichment " where children have finished their work or for recess activities. The end result for both is valuable practice in reading, decoding problems and providing solutions. ❑

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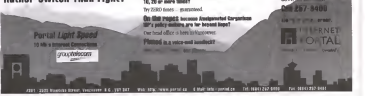
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What's playing?

Fore!

Continued from page **106**

from the flat fairways and sand traps at TPC of Scottsdale to the lush environment and ample water hazards of Florida's Bay Hill Club and the challenging greens of Pebble Beach. As a bonus PGA Pro is backwards compatible with Tour 96 courses such as Spyglass Hill and Avenal. Unfortunately even though PGA Pro's 800x600 visuals improve the look of the older courses, none of them, old or new, approaches the detail and depth currently on display in JN4 or LINKS LS.

For the most part, PGA Pro does a good job of matching results to quality of shot yet short putts remain as difficult as ever with a seemingly inordinate number of arbitrary misses Further hampering gameplay, a warp speed Swing Meter at Pro level makes short chipping absolutely hellish. Sadly EA has seen fit to do away with the "waggle," a fourth element to the swing procedure introduced in PGA 96 while neglecting to implement user customization of advanced techniques such as stance

Full-motion video tours of each course replays, automatically saved Highlight Shots and a voice-over caddy/commentator, serve to spruce things up although play-by-play in Tournament mode is a bit lame, as is the only sometimes reactive gallery In final analysis, there's virtually nothing you can do here that you can t do in Jack Nicklaus 4, and JN4 has a course designer too Need I say more?

British Open Championship Golf

From. Looking Glass Technologies

Street price: $55

System requirements Pentium 90 12 MB RAM 40 MB disk space DirectX 3.0-compatible video card 2x CD-ROM drive, Windows 95 Sound Blaster 16 or compatible sound card.

Envision yourself on the green at 18 sell-out gallery abuzz and commentators describing the scene in hushed tones You address the ball and suddenly all is silent. Sink it and you've won your first golfing major.

It's in! The crowd goes nuts as the commentators wax poetic about your astounding ability This is the world of Looking Glass Technologies British Open Championship Golf (BCOG), the first golf game to offer all the trappings of a major tournament.

If it s extraneous flair you want this is the place. With broadcaster-of-note Jim McKay (yes, *that* Jim McKay) and English accented voice talent Michael Bradshaw calling the shots, galleries that react to your every move, and a TV-type presentation that includes historical video clips, BOCG puts you in the spotlight

In short, you'll believe you're there. McKay, who recorded over 5,000 individual phrases for the game, and Bradshaw provide intelligent and often witty analysis, bordering on mild repetitiveness only after several hours of exposure. Intelligent? "He bounces out of the bunker but into the rough" is testament to the raw volume of situation-responsive loquacity Witty? Just try delaying your shot and you may hear "It can take time to focus on these shots apparently quite some time," prefacing snappy repartee on the pleasures of ice fishing!

In keeping with the theme of the real life British Open, the game features two of Britain's most infamous courses, Old Troon and St. Andrews. BOCG sports the same standards of most popular golf games, including a rear view of your on-screen persona, horseshoe-shaped drive and chip meters, a lovely shot designer for draws, fades and backspins, and an overhead "blimp" view with zoom and pan. A very likable horizontal sliding scale marked in feet comes in perfect for putting

Although the program doesn't provide typical high-end amenities, such as multi player support, aerial fly-bys, or alternate scoring modes (i.e. skins, stroke, or shootout) and the manual is decidedly skimpy, British Open Championship Golf does what it does well and puts an exciting slant on computer golf. ❑

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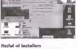
Mac OS 8: A new face on an old OS?

BY GRAEME BENNETT

Mac OS 8
From: Apple Computer Inc.
For: 68040- and PowerPC based Macs
Pros: PPC-native Finder. Improved Internet functionality
Cons: Still lacks full pre-emptive multi-tasking and a multi-threaded kernel. Does not support 68030-based Macs—although certain models with a Daystar PPC upgrade may be compatible. Weak handling of non-Mac files
Version tested: We tested Final Candidate 2, a feature-complete beta of the forthcoming Mac OS previously code-named "Tempo." (Mac OS Rumors reports that Final Candidate 5 is expected to become the Mac OS 8 Golden Master.)



A fistful of installers

As soon as the Mac OS 8 installer gets under way, you can see evidence that Apple's been aggressively making marketing deals with Internet connectivity providers and enhancing its Internet prowess.

Included in the new operating system (OS) are tools from Netscape, PointCast, plus a speedy new Java VM of Apple's own design. Multimedia is, as you might expect, well represented by QuickDraw3D and QuickTime (augmented in this version by MPEG compatibility and QuickTime VR). The new OS also carries the legacies of Apple's now faltering commitments to QuickDraw GX, OpenDoc and CyberDog. All of these technologies are included (but some options are not part of the default installation) despite their uncertain futures.

Once installed, the new system runs a Mac OS Setup Assistant that walks you through the steps to give your computer a name, share a folder, choose a printer, and choose whether you want the Simple Finder option turned on or off. Beginners might want to choose to have this option on; we chose the default, off.

We encountered a couple of snags during installation that may give novice users pause. First, the installer was unable to update our non-Apple hard-disk driver (and the PWB Toolkit software we resorted to warned us that data loss would ensue if we updated the driver). Confusingly, the "non-Apple drive" error message appears even if you elect to update the driver of an internal Apple drive, if your system was booted from an external non-Apple drive. There are two workarounds for this. first, you can simply choose to disable the hard-disk driver update by deselecting it (you'll find it

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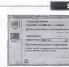
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Another solution that worked for us was to simply ignore the warning (click Ignore) While we can t guarantee this will work for everyone we tested this on both PowerPC and 68040 Macs of varying vintages with no ill effects. The hard-disk driver updater does not attempt to update non Apple drives, although this is not clear from the onscreen messages

The second problem we encountered was the error that resulted when the Setup Assistant found our network printer busy It set up the unit as a generic printer instead. This too is easy to fix

The installer is dumb in a few other ways, too It installed a CDAudio Player tool, even though our system lacked a CD-ROM drive Fortunately, most users will be glad it's there. The installer also placed a Color StyleWrites Pro icon onto our desktop, although we did not have one of these units connected to our system

Another problem we encountered happened on a PowerBook 5300—one of the most trouble-prone computers Apple has ever released. The installer unexpectedly quit at the end of the setup process. This did not happen on our other systems and, fortunately, did not adversely affect the PowerBook's ability to re-run the installer We were disappointed however that a driver for the Dayna CommuniCard ethernet card in one of our PowerBook's PCMCIA slots was not installed nor did the OS provide any helpful information to enable the card (we eventually enabled the card by installing driver software supplied by Dayna) The new OS provided support for our PCMCIA modem, however

Internet assistance

Next the system provides the opportunity to run an "Internet Setup Assistant"—those without a Net connection can skip over this and quit the installer

The Internet Assistant requires quite a bit of technical information. IP addresses, router IDs, domain names, subnet mask, and so on Some people will need help in setting this up even with Apple's helpful wizard (which, we should add, failed to successfully access our office network's DHCP configuration even though the Mac had been successfully accessing the Internet before the upgrade)

The Assistant neglected to notice that our Mac was connected to a network with a DHCP server, or even to turn on TCP/IP We merely needed to open up the TCP/IP control panel and our office's Windows NT server supplied the necessary DHCP information to enable our Mac to connect to the Internet.

Strangely enough, a similar problem occurred on a different machine when we used the Assistant to help ➤

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us configure a dialup (modem) connection. Again, we had to manually open the modem control panel and enable TCP/IP before our connection would work. In this regard, Windows 95, with its ability to auto-detect and auto-configure modems and install necessary networking components is significantly ahead of the Mac. In short, we weren't especially impressed with the Mac OS 8 Internet Assistant. Nevertheless, it is likely to be an improvement for home users over the experience provided by earlier Mac OS releases, where the system provided little or no help at all.

On the desktop are now Browse the Internet and Mail icons. The browser supplied is Netscape's Navigator, configured with link buttons leading to Apple information pages. Not surprisingly, the Mail program is Emailer Lite, from Apple's Claris spinoff. (Emailer Lite is similar to Version 1 of Claris' product, which has been distributed for free.)

An icon labeled Mac OS Info Center also resides on the desktop. Double-clicking this icon launches Netscape, but does not require an Internet connection. Apple has provided a number of solutions to common problems as part of the OS in hypertext form.

Requirements

Memory requirements for this OS are up a bit over previous releases. The default installation, not including CyberDog or QuickDraw GX, required 7.3 MB of RAM on our 040-based test unit. Our default installation required 95 MB of disk space. Loading up our PowerPC Mac with all available options boosted the RAM requirements to almost 20 MB.

Although Apple says the new OS will not support 030-based Macs, the Unofficial Turbo 601 Site reports that 030 machines fitted with Daystar's Turbo 601 PPC upgrade do in fact work (in PPC mode).

It's worth mentioning that Apple has officially dropped support for PowerTalk with this release. If you were one of tha few who used Apple's ill-fated messaging system, you'll have to switch to Internet-based mail or something else this time around.

Look and feel

Visually the new OS has several nice touches. Buttons and other screen icons have a pleasantly modern shaded look, a la Aaron.

Those lucky enough to have more than one monitor will find a few differences in the way the Monitors and Sound control panel handles multiple displays. PowerBooks that support video mirroring can now enable this function by dragging the first display icon on top of the second. On our PowerBook, which has a grayscale display, it was a double delight to see the new OS for the first time in color on this second screen. As has been the case since 1987, windows, icons and even the menu bar can be dragged from one screen to the other at will.

A Help menu now sits next to the Special menu. The Labels menu is gone, its functions now relegated to the File menu, where they probably should have been all along. The View menu has a new option to view items "as buttons," eliminating the need to double-click icons. Another View menu option sets windows so that they may be minimized as tabs along the bottom of the screen. As with other Mac windows, this is on a window-by-window basis. We could find no way to set all windows to behave this way by default.

Some old-timers may be sad to see that gone at last is the old-style Mac Plus icon in the upper right corner. Now, a Mac OS "happy face" symbolizes the Finder. Much as it was in System 7.6, the word Macintosh has been banished. The About box now displays a picture of planet Earth with the words "Mac OS computer." As always, there's a hidden screen, too. Press Option while choosing the About box to see it.

There are a numbers of small but welcome improvements. For example, the Eject Disk command no longer leaves a "ghost" of the disk on the desktop. It now removes the disk, as the "Put Away" command has done in the past.

Pressing Command-Option now creates an alias of any file as you drag it and the new "spring-loaded icons" feature is interesting (it opens windows when you drag a file onto them), although it strikes us as too much strain on the mouse-hand muscles to use regularly.

Some Mac users may be surprised that Apple has apparently borrowed a few ideas from Windows 95, as well. Most notably contextual menus are now available by Control-clicking on almost any item. A menu pops up with appropriate commands, such as Help, Get Info, Open, etc. Surprisingly, though, Print isn't one of the options available to documents.

Menus now stay down without holding the mouse button (Now Utilities and various shareware utilities can add this feature to older Macs). Also, the Desktop Patterns provided by previous releases are now supplemented by the ability to place a full-color picture on the desktop—another feature long available with shareware products.

If you follow Mac-related stories on the Internet, you might have heard about Dax DaSilva's Mac OS 8 font petition, in which DaSilva's group attempted to get Apple to replace Mac OS 8's ugly Truth/Charcoal font with Espy. According to a report on Ric Ford's Macintouch Web site, DaSilva finally got a response from the company, but Mac OS 8 apparently will ship with a system font

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detractors say is jaggier and uglier than today's Chicago font.

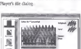
For all the uproar over the change from the old Mac's "Chicago" system font to the new system's revised face, we hardly noticed the change. The new font, called Charcoal, is similar or identical to the Truth face previously seen, and, at 12 points, is less squat than the 10-point Espy face that appeared in products such as Aaron during the "Copland is coming" era. For Chicago fans, the old font is still an option, as is an interface option that eschews the new OS's platinum look for the old black and white austere appearance.

For all the complaints the Chooser has suffered over the years, it is still largely unchanged in this release, although the ability to access a remote Mac by typing in its IP address is a nice touch. Also new on the Apple menu is a "Connect to..." command that opens up a URL with the Web browser Mac OS 8 ships with, Netscape Navigator 3.0.

Even better is the Web Sharing control panel that allows a machine running Mac OS 8 to share files or Web pages over the Internet by simply dragging files to a Web Pages folder and turning on the control panel. And yes, Personal Web Sharing is also available for free without upgrading to Mac OS 8—but it is nice to have it a standard feature.

Unfortunately, when System 8 crashes, it still goes down hard. We found it quite stable and reasonably compatible during our tests (StuffIt Deluxe 4.0 and Speed Doubler 2.0 didn't work properly, though), but type 10 errors still froze the machine occasionally when running Netscape and necessitated a complete reboot. And although the new Finder is multi threaded, the new Mac OS doesn't multi-task especially well. Opening up the Print Window dialog brought a file copy to a complete standstill, and formatting a disk locks out all other tasks. We were, however, able to find files, type notes and access Web pages during the file copy operation.

In this Internet-centric age of computing, we find it unfortunate that Mac OS 8 has such difficulty handling standard file types in MIDI, MPEG and other formats. Attempting to load a MIDI file (filename.mid) created on a PC produced only a "-2003 error—can't find appropriate translator" message when the file was double-clicked. The same message was produced when we attempted to double-click an MPEG movie file. QuickTime 2.5, shipped with Mac OS 8, includes the ability to play MPEG files, but you wouldn't know it by double-clicking a PC-based MPEG movie. The same -2003 error ensued, although we were able to access the file from within Movie Player's file dialog.



Also disheartening is the obviousness that the "not invented here" syndrome still pervades Apple. We found that our non-Apple CD ROM drive wasn't supported by the new system's CD ROM driver. The choice of printers provided by the Startup Assistant includes only six printers—all of them from Apple—and "none of the above" is not one of the choices. Similarly, the only monitors listed in the ColorSync control panel are from you-know-who. Compare this with the multitude of choices provided by Windows or virtually any other OS.

Speaking of color, we were pleasantly surprised by the improvements to the Color Picker, which can be easily accessed from the Edit Menu's Preferences dialog (just click on a label color). Now, you can see the Web-friendly hex equivalent of an RGB color, or select colors in CMYK, HSV, HLS, or several other formats.

Conclusion

The new OS looks like more of an advance (as it should) than any version since 7.0, but the changes are mostly cosmetic. Compatibility seems good, although the performance, particularly on PowerPC-based Macs, was less impressive than we had hoped for from the newly PPC-native and multi-threaded Finder.

Nevertheless, we expect it will be worth upgrading to when released. At this writing, release in the United States is expected on July 22, with a Canadian rollout following four days later. ❑

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Business names and marks

Tips on choosing and protecting your corporate image

BY BRADLEY J. FREEDMAN

Corporate names, trade names, trademarks and Internet domain names are often valuable business assets—they identify the business and its goods and services and may carry significant goodwill. Choosing business names and marks is an important decision that can have far-reaching consequences. Legal advice regarding the availability, legality and protectability of a proposed name or mark is essential and can reduce the risk of costly legal disputes and other problems.

Names and marks

• *Corporate names.* A corporate name is the name under which a company is incorporated. As a general rule, a Canadian corporate name must be distinctive and there must not be a likelihood of confusion between the name and another corporate name registered in that jurisdiction.

A Canadian corporate name need not have any connection with the company's business. In most cases, however, a corporate name consists of a distinctive word (which may be as unique as Xerox or as common as Acme), a term that describes the company's business (such as Distributors, Manufacturing, or Holdings) and a word or abbreviation that designates the business as a limited liability corporation (such as Corp., Inc. or Ltd.)

• *Trade names.* A trade name (also known as a business name) is the name used by an individual, partnership or corporation to identify the whole or a segment of its business. For example, Acme Manufacturing Inc. may use the trade name Wonder Widget Manufacturing (a division of Acme Manufacturing Inc.) for its widget business.

• *Trademarks.* A trademark is a distinctive mark used in connection with a particular good or service to identify its source of origin and distinguish it from the goods or services of others. For example, Acme Manufacturing Inc. may use the trademark WONDER-WIDGET for its products. In many cases a trade name or its key components may also serve as a trademark.

• *Internet domain names:* Internet domain names can be important business identifiers, and can acquire considerable good will. Often they also incorporate key trademarks. Examples of easily recognizable domain names are cbc.ca (for the Canadian Broadcasting Corporation) and cnn.com (for Cable News Network).

Acquiring name and mark rights

• *Corporate names.* The registration of corporate names in Canada is governed by legislation. Corporate name registration rules are designed to guard against public confusion between corporate names.

It is common for companies to use their corporate name as a trade name and as the basis for their trademarks. However, in British Columbia, corporate name registration only confers the right to maintain that name on the Companies Register and to prevent other companies from registering the same or a confusingly similar corporate name.

Corporate name registration does not entitle the company to use its corporate name as a trade name or trademark, and does not preclude others from using the same or similar names as trade names or trademarks. Also, corporate name registration does not immunize the corporate name from claims of trade name or trademark infringement. For this reason, if one intends to use a corporate name as a trade name or trademark, appropriate inquiries and legal advice ought to be obtained before the name is used in that manner.

• *Trade names.* Canadian trade name rights are governed by common law. A trader who has established a business reputation under a particular trade name normally has the right to restrain others from injuring its business by using the same name or a confusingly similar name in the geographic area where the name has acquired a reputation. A protectable trade name generally must have been adopted and used in business for a reasonable time and extent such that the name has acquired a reputation and goodwill.

• *Trademarks.* Canadian trademark rights are governed by common law and the Canadian Trademarks Act. A trademark need not be registered to be protected in Canada, although registration under the Trademarks Act is highly recommended.

Common law trademark rights arise through the adoption and use of a trademark in Canada. At common law a trademark owner has the exclusive right to use its mark in respect of its wares or services in the geographic area where the mark enjoys a reputation.

Registration under the Trademarks Act provides substantial additional benefits and protection for trademarks, including the exclusive right to use the mark in association with the goods and services for which registration is granted throughout Canada (and not just in the area of actual use and reputation). Trademark registrations last for renewable 15 year periods.

• *Internet domain names:* Internet domain names are generally assigned and registered on a first-come, first-served basis by a number of organizations in Canada the United States and elsewhere Internet addresses end with an "extension" or "top-level domain," such as .com (pronounced "dot-com") for commercial businesses and .edu for educational institutions or two-letter country codes such as .ca for Canada, and .us for the United States.

There have been numerous well publicized disputes and lawsuits regarding the right to use commercially valuable domain names. So far, most disputes have resulted from conflicts between domain names and pre-existing trademarks or trade names. In most cases the pre-existing trade name or trademark rights have been given priority.

A proposed new domain name system will provide broader domain name administration a new dispute resolution mechanism and seven more top-level domains: .firm for businesses or firms .store for businesses selling products .web for sites emphasizing the World Wide Web .arts for cultural and entertainment sites .rec for recreational and entertainment activities .info for information services and .nom for individuals. The new system has been approved by numerous major Internet related organizations and participants but is not yet in place.

Selecting protectable names and marks

Selecting protectable business names and trademarks often involves balancing marketing and legal considerations.

The distinctiveness of a trade name or trademark is often the key to its strength and protectability. For this reason from a legal perspective the best trade names and trademarks are distinctive rather than descriptive. On the other hand marketing considerations often favor trade names and trademarks that are descriptive of the business or its goods and services. The challenge is to achieve an acceptable balance of these potentially conflicting considerations.

It is crucial to conduct comprehensive searches as soon as possible and before incurring significant expenses relating to a proposed trade name or trademark, to ensure that the name or mark, or similar names and marks are not already in use. Searches cannot conclusively guarantee the right to use a trade name or trademark or eliminate the possibility of conflict with another name or mark. Nevertheless appropriate searches may avoid costly lawsuits potential liability for infringement and wasting resources on names or marks that must later be abandoned.

Name and mark registration

Corporate names, trade names trademarks and Internet domain names should be properly reserved and registered as soon as possible. Trade names and Internet domain names (both with and without an extension e.g. .com or .ca) should be registered as trademarks, as long as they are properly used and identified as marks. In many cases foreign registration is also appropriate and should be carefully planned.

Name and mark protection

It is important to vigorously enforce trade name and trademark rights, and to protect names and marks from infringement erosion and depreciation. Failure to do so may result in the name or mark losing its integrity and protectability. Perhaps the most fundamental precaution is to ensure that trade names and trademarks are properly used and identified in connection with the business and its goods and services and are not abandoned or misused. Agreements to let others use a trade name or trademark should be properly documented and should include proper use guidelines and standards.

Summary

Names and marks can be valuable business assets. The choice of a corporate name, trade name Internet domain name and trademark can have significant legal and business consequences. The legality and protectability of a name or mark are important considerations that ought to be made with the benefit of proper legal advice and before the name or mark is used. ❑

Bradley J. Freedman is a trial lawyer with the Vancouver law firm Ladner Downs. His preferred areas of practice include intellectual property law and commercial litigation. He can be reached by email at bfreedman@ladner.com

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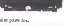

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BIG BLUE AND COUSINS. PO Box 6300 Station B, Victoria BC V8R 6S4. General meeting last Wednesday 7:30 p.m. at U. Vic.-Elliott Bldg. Lecture Theatre 168. Also, special interest group meetings. 382-3984.

CANADIAN INTERGRAPH USERS GROUP CONFERENCE. September 8-11 [illegible] Delta Meadowvale, Mississauga, ON "Drive The Open Road" Contact Laura Bowman, Intergraph 2912 Memorial Dr SE Calgary AB T2A 7R9 Voice (403) 569-5562 Fax (403) 569-5[illegible] e-mail lbowman@ingr.com

CANADIANS ON COMPUSERVE Canadians around the world and anyone interested in things Canadian are joining the Canadian Issues section of The Issues forum on CompuServe. Lively discussions center around politics, society, [illegible] and contests. Plus, there's a growing library of Canadian files. Go Issues at any CompuServe prompt. Dial 1-800-848-8199 for more info.

CIPS VANCOUVER SECTION (Canada's largest Association for Computer Professionals). CIPS Members enjoy unparalleled networking and professional development opportunities at our monthly meetings and special events. Discounts offered for student members. PO Box 20627 Howe St. Vancouver, BC V6Z 2N8 Phone (604) 681-2796 or Fax (604) 986-1879 for next meeting date.

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COREL ARTISTS USER GROUP Last Tuesday of every month, 7:00 to 10:00 pm, at Kwantlen College in Richmond, BC. Monthly newsletter. Contact: Bev Harcus, 533-5864

DATA-LINK USERS GROUP Tel 321-3387 PC support BBS 321-0073 (24 hr service) with specialized self-made BBS software. The purpose of this User group is to allow users to get together for problem solving discussion of setup and to meet people. Call by voice 9 a.m.-4.30 p.m. ONLY please. This group is dedicated to RoboBOARD by Seth Hamilton. Other BBS software are welcome. Membership is free!

FOXSOFT EDMONTON'S FOXPRO USERS GROUP-second Tuesday 7:00 pm, Grant MacEwan City Centre Campus East Wing Room C-137/C-136 10700-104th Ave. Contact: Ken Rayner at 437 0315 or Melton Stuart at 490-3712 (days). Info Bulletins on BBS 457-4105

GENERIC CADD USERS GROUP Contact Frank Zacrfat (604) 582-8283 BBS: 294 8007 (9600 n,8,1)

INDEPENDENT COMPUTER CONSULTANTS ASSOCIATION OF BC. The ICCA is a non-profit association of consultants who provide services in the field of Information Technology. The objectives of the ICCA are to provide a forum where consultants can network with each other, exchange views and improve their business and computer skills. Monthly meetings with speakers. For further information contact us at: Suite 720-050 W Broadway Vancouver BC V5Z 1K5 Tel (604) 734-2747 Fax (604) 734-2767 or E-Mail icca@intlink.bc.ca WWW:http://www.icca-bc.org/icca/

LOTUS NOTES. see "Pacific Notes User Group"

MACWEST COMPUTER SOCIETY Meetings for members and visitors Include Shareware copy sessions, software and hardware demos and Q&A sessions. If you use a Macintosh, check us out! General meetings: 2nd Wednesday of each month; Beginner's meetings 3rd Wednesday of each month, 7:30pm Coyote Creek Golf & Country Club, 152nd Street, Surrey. Web site: http://www.macwest.org/usergroup/index.html. MacWest First Class BBS modem number 502-9693 Login as Guest/guest. Messages and information at 298-9630

MS ACCESS TECHNICAL USER'S GROUP For those who want to participate in learning more about MS Access. For information call Greg Hind at 434-0000, from 9:00 to 5:00

NANUGS (Northern Alberta Novell Users Group Society) meets quarterly at the CompuSmart store on Mayfield Road. For information, please e-mail to nanugs@freenet.edmonton.ab.ca or phone Mike Brown (403)487 7886.

OBJECTS USER SOCIETY See British Columbia OpenStep Group (B.C.O.G.)

OPENSTEP USER SOCIETY (VNUS) See British Columbia OpenStep Group (B.C.O.G.)

PACIFIC NOTES USER GROUP (PACNUG) Lotus Notes users meet the last Wednesday of each month, 5.15pm at Rose's on Robson on July 31st. Contact Dolores Baier at 888-2141 or dolores-b@wnds.com

PC/MAC USER GROUP Wanted Professional Photography/Graphic Designers to share, network and learn the latest hardware and software programs available. Starting May 7th we will meet at 7:00pm every 1st and 3rd Tuesday of the month at Encore Computer Center, #208-1838 W 5th Ave. If you are interested please contact: B. Harrington at either 873-8815 or mataf@mindlink.bc.ca for further info.

PORT COQUITLAM COMPUTER CLUB Commodore, Amiga IBM-Mac 1st & 3rd Tuesday 7:30 p.m. Room 8 Minnekhada Middle School, 1390 Laurier Ave. Port Coquitlam. Ed Dyer-Publicity at 942-0664.

POWER BUILDER. User group being formed. Meetings are planned for first Wednesday. To enroll call Perform System Developers at voice mail 604-264-0247

SQL SERVER. User group being formed. Meetings are planned for first Monday. To enroll call Perform System Developers at voice mail 604-264-0247

T.I.99/4A COMPUTER B.C.User Users Group every Thursday 7:10 p.m. For information, call Ron 522-2586.

TEENS IN VANCOUVER USER GROUP For teens under the age of 18 interested in doing computer related projects regularly, WWW programming, gather anything! The main goal is to share computer knowledge and to make friends. If there are any homeschoolers interested, that would be great. If interested, please call Orion Mak at 988-2839.

THE TOPKIDS CLUB A user group for kids, teens and parents. Monthly meetings are family focused with software/hardware demonstrations, guest speakers, Windows and Mac tips and online demonstrations. A BBS is available to members. Call Garland Coulson 275-5438 or email garland_coulson@topkids.com

VANCOUVER AUTOCAD USERS SOCIETY 1st Wed of the month 7:30 p.m., B.C.I.T Bby Campus Bldg SW5 Room 1850 Contact: Frank Zander (604) 582-8883

VANCOUVER DELPHI DEVELOPERS ASSOCIATION meets once a month at the Vancouver Public Library (downtown). The meeting is usually on the 2nd or 3rd week of the month on Tue or Wed depending on availability of facilities. The purpose of the group is to provide a common and regular forum for Delphi developers to get together and discuss Delphi related issues. $10 admission to cover rental of room. All meeting notices are sent via fax or voice. To add your name to our distribution list send company name, address info, phone, fax and e-mail to Michael Li at 76307.720@compuserve.com or fax (604) 432 1799 or tel. (604) 432-1700.

VANCOUVER ENTERPRISE FORUM. 430-8761

VANCOUVER FOXPRO USER GROUP (VFUG) September-June, 2nd Tuesday at 1800 hours, 200-1177 W. Broadway. Info Doug at 736-2922, BBS 231-1700 and e-mail to jaytan@uniserve.com

VANCOUVER GEOWORKS USERS CLUB. For further info please call: 683-7490 (eves).

VANCOUVER GEOGRAPHIC INFORMATION SYSTEMS USER GROUP Meetings are held on the 1st Wednesday of each month September through May at B.C.I.T. Town Square Room "C" at 7:30pm. Contact Dwight at 940-1518 for information.

VANCOUVER KAYPRO USERS GROUP-VANCOUVER PORTABLE COMPUTER CLUB (VPCC) AMO 17 friendly members, heritage CP/M software, the latest DOS and Windows files, plus inexpensive access to the planetwide Fidonet! Visitors welcome to our BBS. Contact person Jay Siegel, 4251 Lancelot Dr. Richmond, B.C. V7C 4S4, 271-8519, BBS 271-5934.

VANCOUVER NETWARE USERS GROUP (VNUG) is an official user group recognized by the Netware Users International Assoc. and supported in part, by Novell. Meetings are held on the first business Monday of every month at The Stanley Park Dining Pavilion. All aspects of the networking environment are discussed and presented with emphasis on the Netware network operating system. The workshop begins at 4:30p.m., buffet dinner at 6:00pm, at 7:00pm is a Q&A session followed by a presentation ending at around 8:30pm. Member non-member and student pricing applies to the workshop and/or dinner-presentation. For further information or meeting topic announcements call our voice mail at 888-VNUG (888-8684)

VANCOUVER OS/2 USER GROUP Attended by OS/2 gurus and novices alike and well supported by IBM. The large and lively meeting is held on the first Wednesday of most month at the BC Tel Building, 3777 Kingsway, Burnaby and starts at 6:45 pm. Join us for an informal workshop beginning at 11:30 am on the first and third Saturdays of most month at Doppler Computer Superstore, 486 W. 6th Ave. Vancouver Contact: Jim Shewchuk 871-4789.

VANCOUVER PC USERS SOCIETY (VPCUS) 2nd Thursday 7pm at Science World $5 guest admission General Q&A veteran, feature presentation. Special Interest Groups (see also separate listings) and educational seminar registration. On-disk newsletter. Telephone: 290-0668

VANCOUVER SMALLTALK USERS GROUP (VSMUG) is a group of individuals and organizations interested in object-oriented analysis design and programming with a particular emphasis on Smalltalk. Primarily for individual developers to meet, share ideas and experiences, discuss technical issues and want mail mail. It's designed not to be a forum for sales pitches from vendors. RSVP VSMUG@ven.BC.CA or visit our web site at http://lucy.cec.uvic.ca/~bmth.

VANCOUVER WINDOWS NT USERS GROUP (VANTUG) is a forum for both developers and administrators interested in sharing their NT experience with their peers. Meetings are held every two months at the Justice Institute of BC (JIBC) in New Westminster. For more information contact Glen Houghton at ghoughton@jibc.org or at (604) 528-5501

VISUAL BASICS USERS GROUP is for users, developers and wannabes creating consumer programs and client specific applications. Presentations by industry experts. Meets 2nd Wednesday of each month at 6:00pm at Firehall Library Meeting Rm, 1456 West 10th Ave (1blk east of Granville & 10th Ave) Vancouver,BC Contact 800 1820 at cedric_hughes@hughesco.com for details of upcoming meeting

VISUAL OBJECT DEVELOPERS ASSOCIATION OF VANCOUVER: For information on our next meeting contact John Kniewasser (604) 436-9210 fax (604) 431-3048 CIS 72120,3156

VPCUS Clarion SIG — Clarion is a full-featured DOS & Windows application development platform. This current dark horse of software development tools will soon be acknowledged and acclaimed as a world class star attracting market share and attention. Clarion uses a superior high level language that can be template driven and/or hand coded to produce stand-alone EXE files that are ROYALTY FREE. Check out the excitement. This lively SIG attracts a range of participants from seasoned professional programmers to users and the curious. Meets second Tuesday of month at 7pm at Execu Train Suite 1010, Cathedral Place 925 West Georgia. Contact John Gallo, 736-7762.

VPCUS DBUG (Data Base Users Group) Emphasis is on solving problems of data management with special reference to Paradox. Bring a blank 3.5 inch mail to pick up goodies from the meeting. Meetings for the next few months will be informal, and meet at a local pub. Contact Brad Freese 931-3893.

VPCUS Educational Seminars — Members $5, local members $15. Various topics, times and dates. Contact Gwenda Elwood 737-6874

VPCUS HTML SIG-Want to learn how to create a home page on the web? Do you want to share your expertise? HTML SIG meets the 2nd Tuesday of each month at 7pm at Execu Train,Suite 1010, Cathedral Place 925 West Georgia. contact bdelaney@unixg.ubc.ca or vwgunn@intergate.ca"

VPCUS Internet SIG meets last Wednesday of month, 7pm at 1120 Main Street. Contact" Bob Turner at bturner@direct.ca for more details"

VPCUS LINUX SIG-Meets 3rd Monday of (each) month at 7:00pm at Execu Train Suite 1010 Cathedral Place 925 West Georgia. For futher information please call Stan Clausson 532-8848 or voice to clausson@direct.ca"

VPCUS Novel Netware SIG. This is the place for you if you are a network administrator with Novel glory stories and tips to share, or if you just want to get together with other Novel users to explore its ins-and-outs. Contact Brenda

at bdelaney@unixg.ubc.ca"

VPCUS MICROSOFT OFFICE SIG The place to come if you are a user of any of the Microsoft office Pro products and want to learn more and share your tips. Meetings are temporarily cancelled; for more details call Chris Melton at 228-9099 who is reorganizing.

VPCUS Windows/C++ For programmers and intermediate-to-expert Windows users who are interested in C Access, Visual Basic. Meets second Tuesday of month at 7pm at Execu Train, Suite 1010, Cathedral Place, 925 West Georgia. Contact Casey Hinthorne 879-2700 or at caseyh@vcn.bc.ca"

VPCUS WordPerfect SIG Participants share tips and votes of this wonderful office product. Meetings are in hiatus at this time. Contact Holly for more info at 731-8008 or email to hollyr@dowco.com

Help Desk Institute Local Chapter. An organization providing training,education and a networking forum for Help Desk Professionals. Those people who help computer users with hardware or software problems. For more information on memberships Please send your e-mail to Karen Yuen at: KYUEN@VSE.CA

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CALENDAR

AUGUST

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For more information call 538-3886, day and weekend passes available.

SEPTEMBER

HRMS/EXPO 97 is the world's leading business conference and exposition on information technology for Human Resources, Benefits and Payroll, September 16-18 1997. Conference & Exposition at Javits Convention Center, New York City. World class keynotes include Technology visionary Esther Dyson, PeopleSoft founder and CEO Dave Duffield, HRMS strategic guru Naomi Lee Bloom. For further information contact: Miller Freeman, 1975 W.El Camino Real, Suite 307, Mountain View CA 94040. Fax 415-966-8934.

Technology Trade Show/Conference, Internet/Intranet Conference &Exposition sponsored by Gartner Group at Moscone Convention Center, San Francisco, CA. Tuesday September 23-Thursday September 25. CEOs and key executives from leading internetworking hardware and software companies will provide keynote presentations. For more information phone 203 256 4700 fax: 203-256 4730 www.expocon.com/intmastra.

BC TIA is the host sponsor of SOFTWORLD. SOFTWORLD is a business to business deal making forum for software developers, distributors, VARs, systems integrators, and investors. SOFTWORLD is not a consumer trade show. Senior software and information technology executives from Canada, the USA, Asia and Europe attend SOFTWORLD because it provides real, personal opportunities to explore new business relationships and to make deals. More than 700 delegates from 30 countries will come to SOFTWORLD 97 in Vancouver, September 7-10, 1997 to make deals. For more information call 604-683-3418 or email info@softworld.org, visit www.softworld.org.

IT Forum '97, an exciting mega-show integrating three IT Biennium & focal successful Expo. At Jacob K.Javits Convention Centre, New York City, September 16-18 1997 Conference, September 16-18 1997 Exposition. Free exhibit admission with early registration. For further information please contact: Miller Freeman, 1975 W.El Camino Real, Suite 307, Mountain View, CA 94040. Phone 1-800-232-3976, Fax 415-966-8934. http://www.itforum.com. Exhibit sales: Dave Codd, Karl Frank, Jennifer Isola, or Ken Talsky.

TRAINING

SIMPLY COMPUTING. Courses offered: Computer for Kids, ClarisWorks, FileMaker Pro, Intro to Mac, Word Processing, databases, Internet, Intro to PageMaker, Photoshop and System 7.5. Other services offered are on-site training, self-paced courses and video rentals. Call Simply Computing at 596-6227.

Intranets: Building an Internal Web. This workshop examines the risks and benefits of applying Web technology internally. UBC Continuing Studies, June 24, 6:30-9:30pm. Fee $100. Call 822 1420 for more information.

Langara College-Continuing Studies, 100 West 49th Avenue, Van BC V5Y 2Z6. Phone 323-5322, Fax 323-5699. Multimedia Courses for Beginners & Professionals.

Local Area Network Administration Courses: 2 days-Sat/Sun Aug 9/10 (900-1600) (CSW126) Web Server Setup & Configuration.

Designing Audio and Video for the Internet. This seminar explores the use of audio and video for effective multimedia on the Internet. Topics include: audio and video formats, software tools, storage and bandwidth requirements, multimedia viewers and broadcast technologies. UBC Continuing Studies CS 5864, July 27, 9am-4:30pm. Fee $195. Call 822-1420 for more information.

Visual Basic Internet Programming. This hands on course teaches you to add Internet capabilities to Windows programs and develop entire Internet based Windows applications using Visual Basic. Topics include TCP/IP, Windows Sockets, VB networking tools and more. UBC Continuing Studies CS 5879, August 9 & 10, 9am-4pm. Fee $380. Call 822 1420 for more information.

SEMINARS

INTERNET SERVER CONSTRUCTION. This series of seminars show you how to turn your PC into a commercial-grade Internet server using free or easily available software. Seminars include guide notes and free software. Call 945-0136 for more information.

HOME BASED BUSINESS EDUCATION CENTRE offers self-employed home-based business seminars taught by Buzz Beamson. Buzz is a seminar leader, author, newspaper columnist, consultant and has operated his own successful home-based business for the past twelve years. Call 278-2560 for more info.

START UP STEPS TO SUCCESS. Small business seminars offered by Sherry Kaen. $5 Members, $10 non-members. Held at Coyote Creek Golf Club, 7:10 pm. For more information call 597-0117.

INTERNET SEMINARS FOR PROFESSIONAL DEVELOPMENT. Offers introduction to Java Language, Web Site building using Microsoft FrontPage, Distributed objects: Java &Objects. For time and place of seminars, please see our Internet Home Page at http://www.metrycl.langara.bc.ca/www/

CLASSIFIEDS

ADVERTISING IS FREE FOR INDIVIDUALS. For business, classifieds are $7 per line (40 characters). Send in your ad along with your payment for the September issue by Friday, July 25, 1997. Individuals: to qualify for a free ad, the ad must be for a one-of-a-kind item. Free ads apply for one month in the local edition only. All other ads classify as business ads and are subject to the $7 per line charge. *The Computer Paper* reserves the right not to print submissions.

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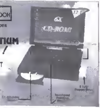

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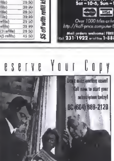

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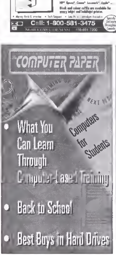

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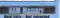

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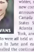
Is Microsoft unstoppable?


JEFF EVANS

As the weather finally began heating up after an endless winter, so did the pace of new computer technology announcements in Canada and the United States Spring Comdex in Atlanta PC Expo in New York, and Comdex Canada in Toronto were all held in the space of about six weeks in June and early July. Together they signalled the continuing acceleration of the Windows/Intel PC as the basic platform for networking, multimedia, business and education to the detriment of the Apple Mac OS, IBM OS/2, and UNIX.

However behind the superficial, incremental changes in hard drives, graphics cards monitors and modems that are the bread and butter of computer shows a great wheel was turning through the entire computer industry The summer of 97 has signaled the start, in earnest of a giant struggle over the future of computing

> What nobody could have expected until recently, though, was that a single company, which doesn't even make computers, TVs or phones, would become the dominant factor in this new stage in the Information Age.

Microsoft and its allies are laying siege to the remaining strongholds of old computing, the enterprise server and mid to high range computing market The anti-Microsoft camp is attempting to strike back with Java and the "thin client" Network Computer (NC), hoping to punch off Microsoft's cash flow which comes from its dominance of the PC desktop

Both factions have the same goal, a global information network for business education and consumers where all media—print, audio, still or moving images—is available to literally everyone on Earth But both factions are determined to be the dominant player in the future global computing market and they're taking no prisoners.

Converging on Microsoft

"Convergence" is the most widely used term that describes the coming together of television telephone and personal computer technology into a new unified information technology Convergence has been a dream of many technological optimists over the last 20 years and more, and was predicted in large measure by the Canadian media guru Marshall McLuhan over 30 years ago

What nobody could have expected until recently though was that a single company, that doesn't even make computers TVs or phones would become the dominant factor in this new stage in the Information Age Yet the overwhelming conclusion that comes from seeing thousands of new high-tech products in a little over a month of trade show hopping is that Microsoft has out innovated out marketed and outwitted its traditional rivals

Always in the market for a good idea

Microsoft uniquely, has avoided the tunnel vision of other technology innovators While holding ferociously to his own vision of "information at your fingertips" and his own corporate self interest, Microsoft chairman Bill Gates has never adopted the "not invented here" arrogance of Apple. Every time he has identified a trend that could pose a mortal danger to Microsoft's position such as the World Wide Web or the NC, instead of resisting it he has embraced it and attempted to turn it into Microsoft property

In this, he has historically been helped by the mistakes of others. Apple's hoarding of ha superior Mac OS, when it could have squashed Microsoft's wretched Windows 1 0 by porting the Mac OS to the Intel platform, is one example IBM's failure to develop its own first version of PC DOS in house, or to see the PC as a central part of the company until it was too late is another. The UNIX community's longstanding failure to enforce true compatibility and ease of use on its OS is proving to be a critical mistake that has opened a strategic path for Gates and Windows NT

Now, the industry has been forced to face reality, by Gates move to scale Windows both upwards and downwards across the computing food chain. At the Microsoft sponsored Scalability Day in New York in the spring, Gates revealed that he was making a lavishly funded and frighteningly credible run at the crown jewels of corporate computing, the high-availability enterprise server market

He revealed that over an eight month period Microsoft had spent a billion dollars to push NT a giant step closer to being a truly high powered reliable operating system for mission critical corporate computing He demonstrated levels of Windows NT Server performance on multi processor Intel- and DEC Alpha based servers that can handle demands for Internet transactions for example far beyond any current needs

At the same time Gates and his allies rolled out the first generation of low maintenance Net PCs at the PC Expo show in New York. In conversation with *The Computer Paper* Gates also claimed that the "Windows Terminal," a direct competitor to the NC platform is due to be unveiled soon, and would make the Java NC redundant except in certain specialized niche markets The extent of Gates' concern about the potential of Java, network computing and the NC is shown both by the scorn that he heaps on the NC platform and by the amount of effort and money he is pouring into his own competing platform

Happiness is a warm royalty cheque

Microsoft has often been denounced by Sun Microsystems' founder Scott McNealey, as "a post office box for royalty cheques" The Microsoft model of mass marketing PC software at low prices, with constant upgrades, has made Microsoft the most profitable high-tech firm and one of the fastest growing. The combination of lots of cash and a huge user base has enabled Microsoft to build or buy new technology at will, and to attract the largest third-party developer base in computing history.

Gates can throw $1 billion into the Comcast cable service (to speed development of high bandwidth Internet and networking services) without blinking, and thereby stimulate many times that amount of similar investment by both his allies and his bitterest enemies

The Anti Bill League

Larry Ellison of Oracle has embarked on what amounts to a holy crusade to cut Gates down to size with little to show for the effort so far His Network Computer, Inc , a subsidiary that develops NC technology has just united with Netscape's Navio subsidiary to speed the creation and adoption of NC solutions before Gates' Net PC and Windows Terminal closes the best potential markets to the would-be Windows-slayers.

The digital nervous system and the housefly principle

Gates is helped enormously by the fact that most computer users stare into his software on their computer screens every day His world view is becoming *the* world view Gates discussed his concept of the "Digital Nervous System" at Comdex Atlanta, and for a moment his words seemed to resonate with the predictions of Marshall McLuhan.

The fully wired business enterprise literally relies on its networked computers in a manner analogous to the way a living organism relies on an organic nervous system to control itself, perceive the world and interact with it. In a sense, Windows users pay royalties to see the world through Bill Gates electronic eyes

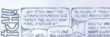
> To the defenders of UNIX, the Mac OS, or the Novell Network Operating System, who, almost despairingly, point out the real limitations of current Microsoft technology, it almost seems that no one is listening to mere facts.

To the defenders of UNIX, the Mac OS, or the Novell Network Operating System, who, almost despairingly, point out the real limitations of current Microsoft technology, it seems that no one is listening to mere facts. Microsoft inexorably continues its exponential growth, even as Gates warns that the revenue curve will have to start leveling off someday

Critics of Microsoft point with alarm to the creation of a Microsoft behemoth they use the biological analogy of uncontrolled population growth. If two houseflies reproduced without restraint, in so many months or years, the entire planet would be 30-feet deep in flies. Similarly, the argument is made, if Microsoft continues to grow without hindrance, its revenues will soon reach $1 trillion a year (or pick your own astronomical number)

The revenge of the nerds

The reality, of course is that there are always limits to growth ❑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